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PENCIL POINTS

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A Journal for the Drafting Room

Portion of a Drawing by John Vincent, Showing the Main Entrance of Building for Buenos Aires Branch of the First National Bank of Boston, Mass. York & Sawyer, Architects.

JANUARY 1922

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In This Issue:—The Birch Burdette Long Sketch Competition for 1921; The Class B. Problem, Architectural Detail. Perspective Drawing. Plates:—Antique from D'Espouy. Sketches of

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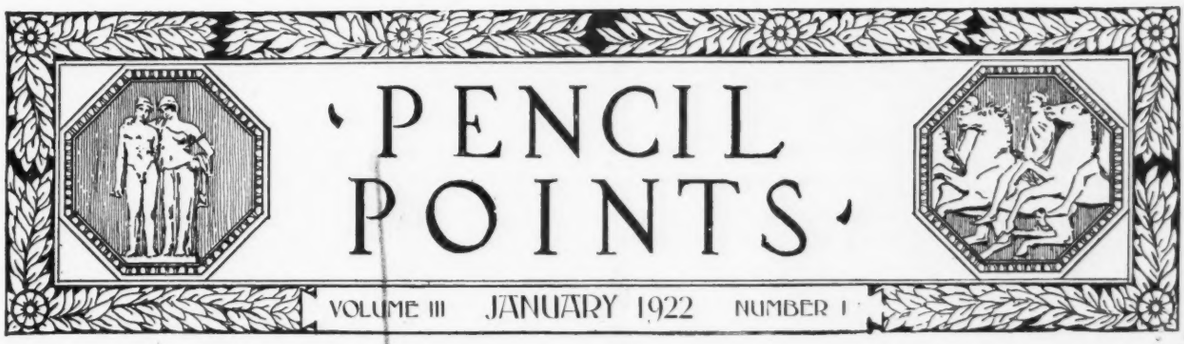


VOLUME III JANUARY 1922 NUMBER 1

WHAT DO YOU THINK?

THE "prospects and stability of a Mexican jumping bean," is the way one of our readers sums up his view of the situation of a large percentage of architectural draftsmen under existing conditions of employment. This phrase occurs in a letter we have just received. The situation in this respect is well enough known to almost anyone who is likely to read this journal to make it unnecessary to dwell upon the uncertainty of the draftsman's employment in general. It may, however, be profitable to consider some of the effects of this condition and to ask what can be done.

In the first place, the uncertainty that prevails under existing conditions produces a spirit that does not tend to the highest efficiency. Men who are taken on when an architect happens to be busy and let go when slackening of activity in the office occurs cannot feel the interest in the work and develop the degree of co-operation that is possible among men who are permanently employed. In the next place, this uncertainty makes many men discontented and they go into other lines of work where employment is steady. This means a loss of efficiency and a loss of trained men to the architectural profession.

Some men have solved the problem, so far as they are personally concerned, by making themselves practically indispensable to some architectural office, so that they are retained year after year, as part of the permanent nucleus of the organization. It takes well-directed effort, study and not a little business ability to make such a place for oneself. Hard work alone will not do it. A man must study and keep his eyes open for ways to make himself especially valuable in the organization with which he wishes to permanently establish himself. The number of such positions is not large compared with the number of draftsmen, consequently, the majority cannot solve the problem in this way. Not infrequently the draftsman finds that as soon as he becomes sufficiently experienced to earn a good salary he is among the first to be let go in slack periods, as few as possible of the higher-priced men being retained.

The greatest stumbling-block to the solution of this problem is the fluctuation of work in the average architectural office. When the architect has little work he, naturally, cannot employ a large force of draftsmen—the draftsman simply shares the uncertainty of the architect.

When one is faced by so urgent a problem as making a living from month to month, speculation as to tendencies that may clear that situation in time, are not very satisfying, but this matter is so bound up with the very structure of architectural practice that it seems as though a great change will have to take place, before general relief can be found. Large firms, as a rule, employ large numbers of draftsmen fairly steadily. It is in the smaller offices, usually, that the fluctuation is greatest and the smaller offices are now in the majority. There seems to be an increased tendency to take the more able men into the firm, making strong organizations, also in some cases a group of architects now share the same drafting room—this means usually an office that is steadily busy and able to give steady employment to draftsmen. These tendencies may point to the ultimate solution of the problem. But it looks as though each man must work out his own salvation in the meantime by making himself as valuable as possible.

We want to know what you think about it. We may print some of the letters we receive. If you do not wish yours printed please say so, but let us hear from you. What do you think is the solution of the problem?

PRIZES OF ROME IN ARCHITECTURE, SCULPTURE AND PAINTING ANNOUNCED

THE American Academy in Rome announces its annual competitions for Fellowships in Architecture, Sculpture and Painting. They are each for a term of three years with a stipend of $3,000.00 and opportunity for travel. Studio and residence at the Academy are provided free of charge and board at cost. The competitions, which will be held in various institutions throughout the country and will probably begin in late March or early April, are open to all unmarried men, citizens of the United States. Entries will be received until March 1st. Any one interested should apply for detailed circular of information and application blank to Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.

Pencil Sketch of Durham Cathedral by Kenneth John Conant, Cambridge, Mass., Winner of the First Prize in The Birch Burdette Long Sketch Competition for 1921.

THE BIRCH BURDETTE LONG SKETCH COMPETITION FOR 1921

THE jury for the Birch Burdette Long Sketch Competition for 1921, conducted by PENCIL POINTS, met on December 7 at the rooms of The Architectural League of New York, and judged the large number of sketches submitted from all sections of the country, and from Canada and England as well. The report of the jury is printed in full below:

Report of the Jury.

In judging the sketches submitted in the Birch Burdette Long Sketch Competition, for 1921, the jurors gave particularly careful consideration to the terms of the program, bearing in mind the pertinent question as to whether the drawings, and especially those placed, contained evidence of being drawn from some interesting piece of architecture or whether they appeared to be drawn from memory, from photographs or from some architectural design and in an office. Since most of the competitors submitted more than one design the judgment in most cases, was made on the entire set submitted by each competitor. Attention was paid to the character of each drawing submitted, i. e., whether it was a drawing of architectural character such as might be made by an architect or one which appeared to be purely the presentation of an artist, that is to say, whether it gave evidence of a knowledge of architectural detail or whether that detail was slurred. Some of the very best of the drawings submitted had both these qualities inherent in them, although that may seem anomalous. The jurors feel that these two qualities, may be seen in some degree at least in the sketches submitted by men to whom prizes have been awarded.

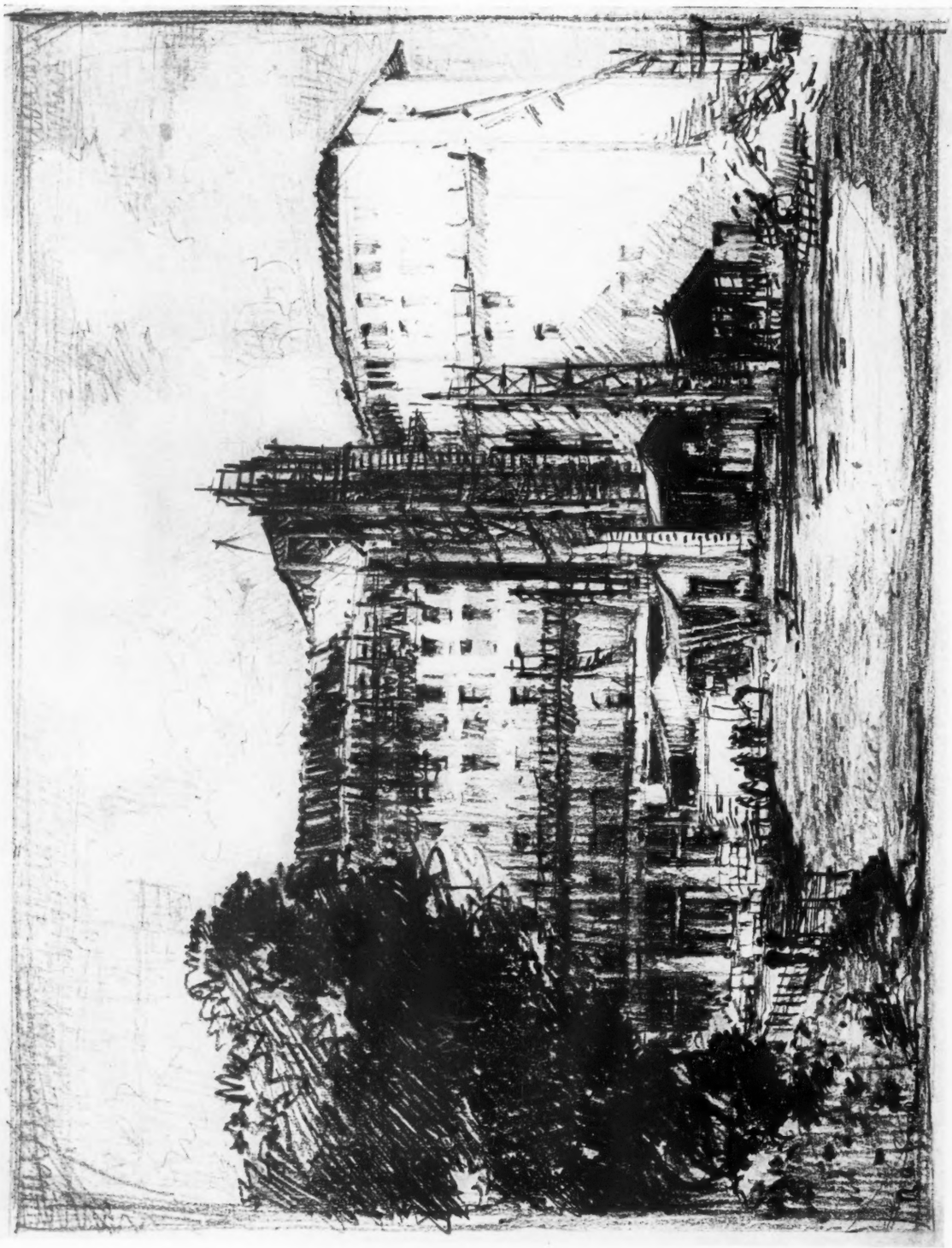
The first prize ($100.) was awarded to Kenneth John Conant, of Cambridge, Massachusetts, who submitted three drawings in which the rendering was quite unusual. These were drawn in pencil and in the handling of tones they showed a skillful gradation that give them a quality more often found in wash drawings. The detail was skillfully and exquisitely suggested and the plane values were beyond criticism, all of which might lead one to assume that these drawings were tight, on the contrary they were quite free in appearance. The jurors were unanimous in awarding the first prize to Mr. Conant.

The second prize ($50.) was awarded to Robert A. Lockwood, of Los Angeles, California, who presented four drawings of almost equal merit. They were quite free, had the unquestioned appearance of having been drawn out of doors and were drawings such as would be made by one engaged in practice or study of architecture. Mr. Lockwood's drawings were very virile and the subjects selected were of a kind that lend themselves to the making of fine compositions.

The third prize ($25.) was awarded to Otto F. Langmann, New York City. He submitted two sketches both of which greatly interested the jurors. His sketch of Wallabout Market, Brooklyn, New York City is a most effective presentation and shows satisfactorily the detail of the architecture notwithstanding the fact that it is very freely drawn. The sketch of High Bridge, New York City, is rendered in ink, the detail is carefully drawn, it shows the planes perfectly and the water reflections are exquisitely handled.

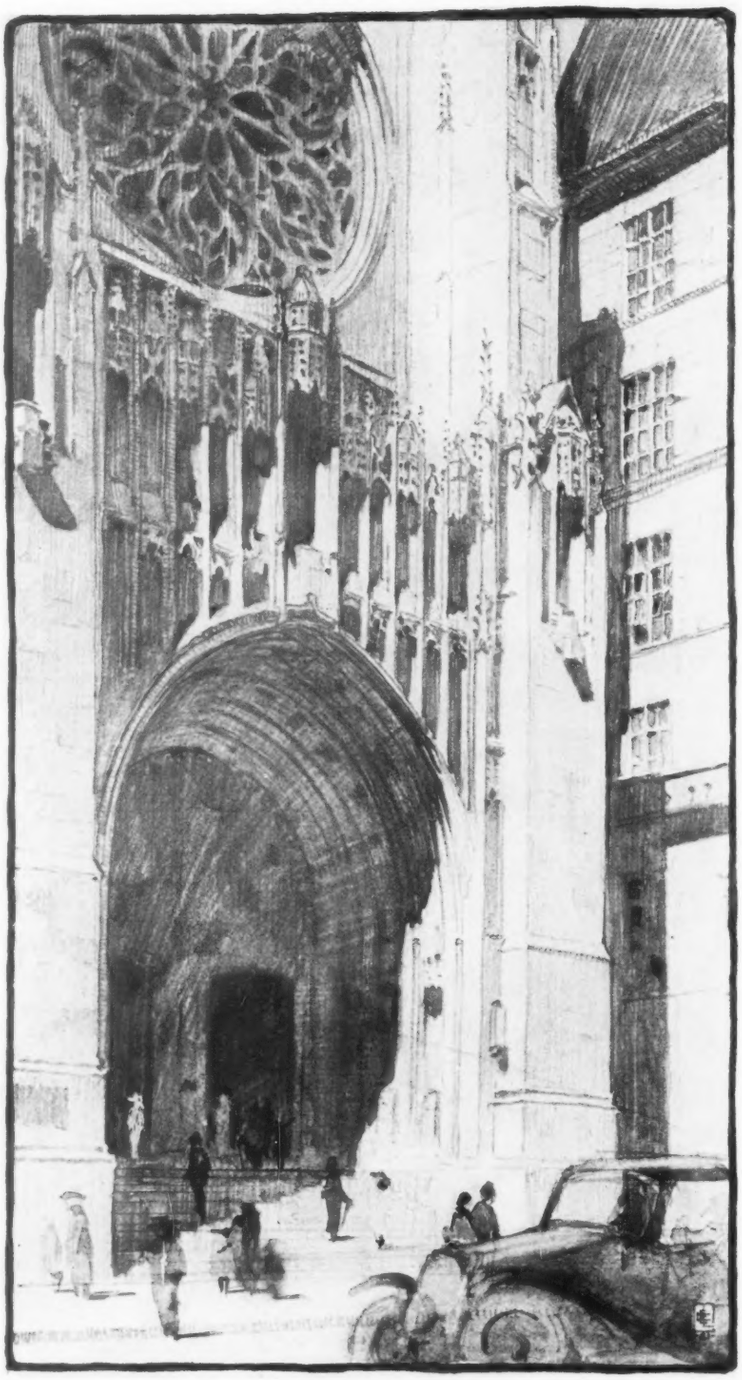
The fourth prize ($15.) was awarded to Elliot L. Chisling, New York City, who presented three drawings, two in color and one in pencil. These drawings show a very precise knowledge of detail and the drawing of the masses is explicit. The perspective is convincing the shadows are clear and definite and the color used is charming.

Six Prizes of Ten Dollars each were awarded as follows:—To Lionel H. Pries of Philadelphia, Pennsylvania, who presented five sketches of great charm that showed an appreciation of architecture, as understood by the architect. These drawings were unquestionably sketched out of doors. While in some cases they were ambitious in character, these sketches were, nevertheless, admirably drawn as to values. To W. H. Butterfield, of New York City, who submitted six sketches all of approximately equal merit and of widely diversified subjects, some rendered in color and others in pencil. To John C. Wenrich of Rochester, New York, who submitted four sketches in gouache color. These were quite pictorial, but architectural nevertheless. To E. Maxwell Fry of Liverpool, England, who submitted nine sketches, some in water color and others in pencil, all having the appearance of having been rapidly made and having the pleasing quality that often comes from working in a spontaneous manner. One of the water colors was quite full of character, charm and atmospheric quality. To C. K. Nelson of Alfred, New York, who submitted four sketches unique in character on splendidly chosen colored paper and with rendering in pastelle. These sketches were of about equal merit. To Arthur G. Wilson, of Montreal, Canada, who submitted seven water colors. Some of these drawings were excellently rendered in parts, the technique in these places being quite fine. Had they been rendered uniformly in the manner above alluded to, they would unquestionably have been placed higher. The jurors found at their disposal such a wealth of material from which to judge that they felt constrained to give men-



Sketch by Robert A. Lockwood, Los Angeles, California. Winner of the Second Prize in The Birch Burdette Long Sketch Competition for 1921.

Sketch of High Bridge, New York City, (brown ink on paper of yellow tint) by Otto F. Langmann, New York, Winner of the Third Prize in The Birch Burdette Long Sketch Competition for 1921.



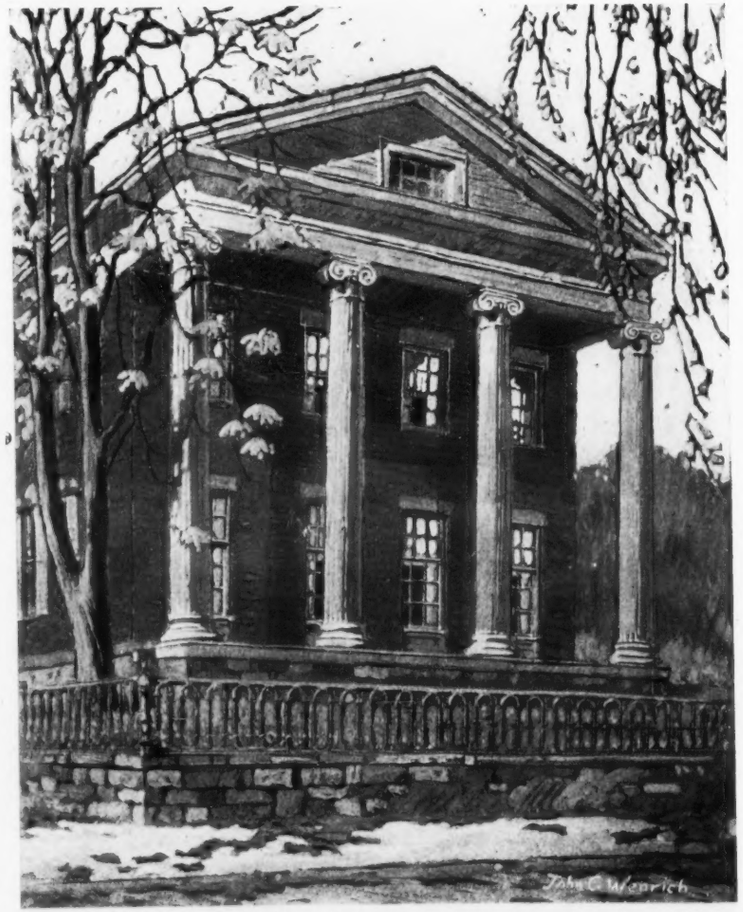
Sketch of St. Thomas's Church, New York (pencil and water-color), by Elliot L. Chisling, Winner of the Fourth Prize in The Birch Burdette Long Sketch Competition for 1921.

Sketch (pastelle on orange-color paper) by C. K. Nelson, Alfred, N. Y., Winner of a Prize of the Fifth Grade.

Pencil Sketch of a Bit of Old Philadelphia by Lionel H. Pries, Philadelphia, Winner of a Prize of the Fifth Grade.

Water-color Sketch by Arthur G. Wilson, Montreal, Canada, Winner of a Prize of the Fifth Grade.

Water-color Sketch by E. Maxwell Fry, Liverpool, England, Winner of a Prize of the Fifth Grade.



Water-color by John C. Wenrich, Rochester, N. Y., Winner of a Prize of the Fifth Grade.

Pencil Sketch by W. H. Butterfield, New York City, Winner of a Prize of the Fifth Grade.

tions to a number of the men who submitted sketches. The honorable mentions were awarded to five of the competitors whose sketches had been considered in the final judgment with those which were placed. The following men received honorable mentions:—George R. Wiren, Boston, Massachusetts; Alfred Shaw, Boston, Massachusetts; R. W. Tempest, Detroit, Michigan; Maitland Belknap, New York City; W. A. Staples, Pittsburgh, Pennsylvania.

In summing up, it appears that the majority of the men who received the mentions, had submitted drawings which were not throughout of winning merit. In fact there was much disparity in quality in the best of the drawings, submitted by each of these competitors. It is interesting to note that four hundred and sixty-two sketches were submitted by one hundred and thirty-two competitors.

The jury felt that in many cases the selection of the subject for the sketch was not altogether happy. It is obvious that one cannot always have a wealth of picturesque material available, such as one would find in the old cities of Europe. On the other hand, there is to be found here extraordinary opportunity in the quantity and quality of architectural subjects and interesting ensemble, if the draftsman understands the value of proper selection or, in default of an interesting subject, lays stress on composition. Too many of the sketches exhibited the expenditure of an enormous amount of effort on the trivial in architecture or a total absence of any attempt at selective composition.

In the opinion of the jurors, while some of the sketches were very meritorious, there appeared to be room for improvement in a large number of those submitted. The jurors are of the opinion that it would be of inestimable value, if the draftsman type of man for whom this competition was more especially intended, should become more proficient in free-hand drawing, as an aid to him in designing. The jury feels that this point is well expressed in the following quotation from Guadet's "Elements et Theorie de l' Architecture."

"But, you say, 'I am told about literature history and the sciences, what about drawing?' Rest assured that I have not forgotten it but that I have first wished to acquaint you with the stern difficulties in your path to be resolved in order that you may know that the privilege of adventuring into the enchanted field of purely artistic study must primarily have been earned."

"Concerning drawing there is but one thing to say:—'You will never be too much a draftsman.—Study drawing in a serious and vigorous way, not merely to produce pleasing sketches but to grasp with a clear visualization the elements of form and contour. Learn to know your model, whatever it may be, and render it faithfully. In a word, be a draftsman who is at once loyal and faithful to his subject—a much more rare thing than you may imagine. Only the study of drawing will enable you to sense the extreme delicacy of proportions which set your compasses at naught; but which nevertheless the eye readily perceives. Thus will you acquire fertility of imagination and artistic capital. This is so true that we are accustomed to find among the most skillful draftsman those most able in composition and possessing the greater resourcefulness in imagination and ingenuity, whether it be in the arrangement of a plan or in the treatment of a decorative façade. And this is as it should be, for as there is unity in art so drawing is the corner stone of all the arts.

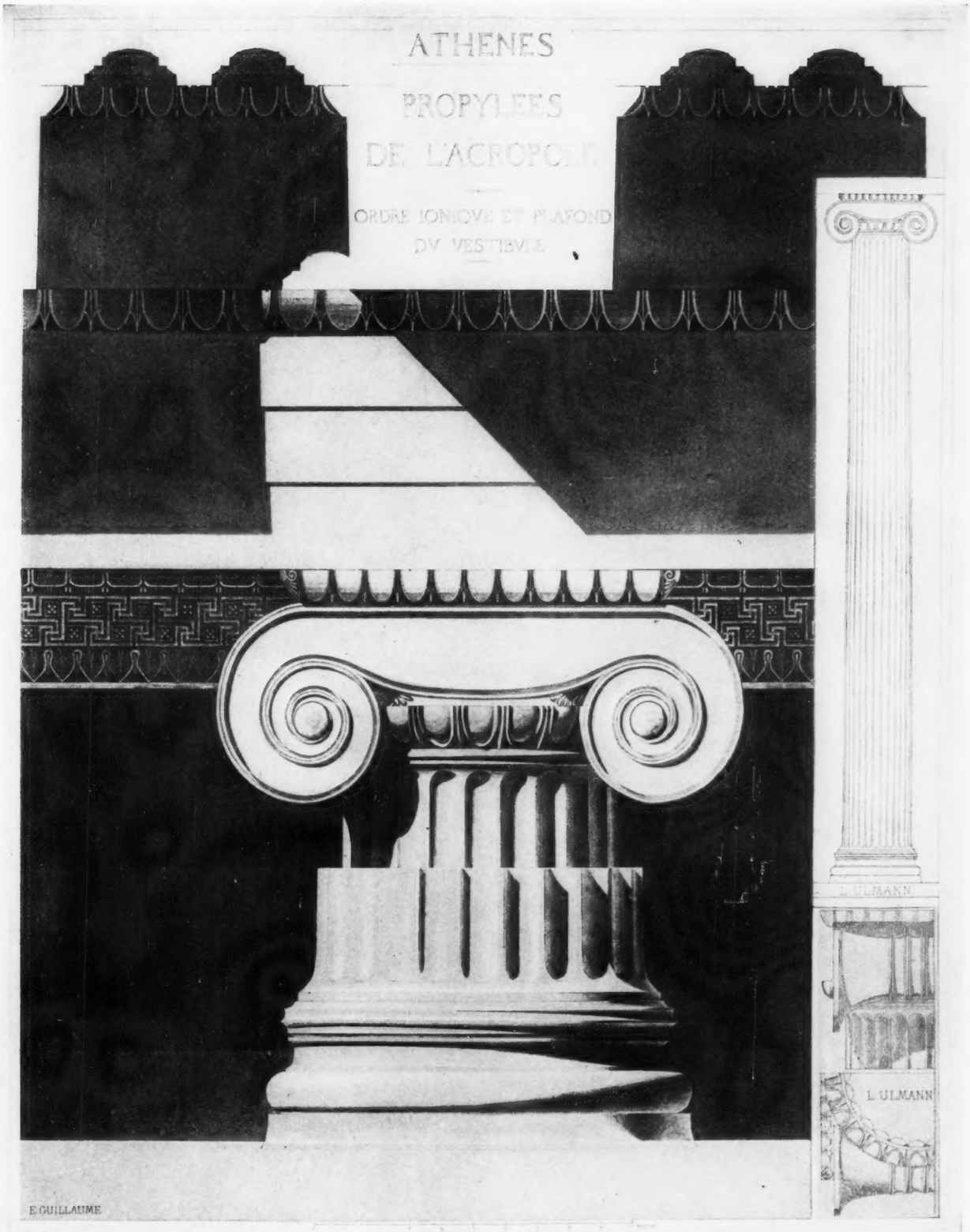
"Therefore, be well advised that you will never be a master of architectural design nor qualified to produce even a good geometrical drawing unless you are a good and sufficient draftsman in the broadest acceptance of the term. As a convincing example let us assume that two architects are copying the same architectural motive; a purely geometrical detail without ornament or sculpture. Both have exhibited the same precision in their measured drawing and reproduced the outline with the same exactitude, one however is a draftsman and the other is not. The drawing of the first will be a true and faithful representation of the model; that of the second will suggest neither its character nor its form.

"The study of drawing is rounded out and developed by the study of modelling, another form of drawing, because in drawing or in modeling it is not the hand that we primarily cause to function but the eye; the faculty of seeing with exactness and truth. But with this difference that while drawing teaches you to apprehend the appearances of objects, modelling teaches the reality of them and prepares you, yet more directly for the understanding of architecture."

HOWARD GREENLEY,
CHARLES Z. KLAUDER,
BERTRAM GROSVENOR GOODHUE,
BIRCH BURDETTE LONG,
EUGENE CLUTE,

A selection of sketches from those submitted in the competition was placed on exhibition December 8-31, in the rooms of The Architectural League of New York, in the Fine Arts Building, 215 West 57th Street, New York, in conjunction with the Special Exhibition of Summer Sketches by Members of the League. Included in this exhibition, in addition to work of prize winners and of the men who received honorable mention, are as many of the more meritorious works of other competitors as the limits of space would permit. In January, this exhibition of sketches from the competition will be shown in Boston, under the auspices of the Massachusetts Institute of Technology, and it will probably be shown in various other cities as a number of applications for the loan of the collection have been received from architectural clubs.

The publishers of PENCIL POINTS wish to take this opportunity to express their appreciation of the help received in making this competition a success—to express appreciation to all who entered the contest as well as to the architects, heads of schools of architecture, and ateliers.

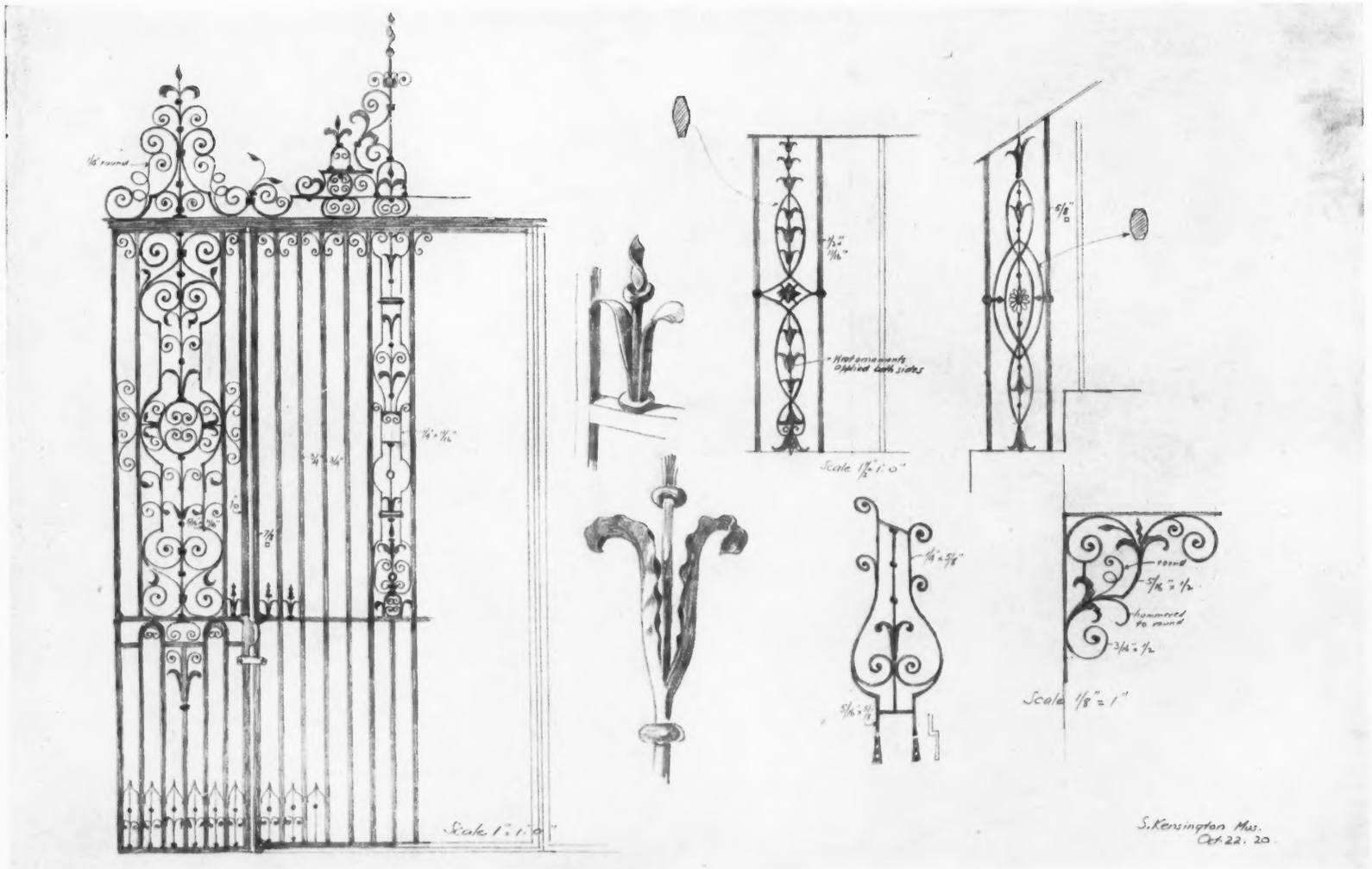


DETAIL OF THE PROPYLAEUM, THE ACROPOLIS, ATHENS

RESTORATION BY E. GUILLAUME AND L. ULMANN.

FROM D'ESPOUY'S "FRAGMENTS D'ARCHITECTURE ANTIQUE"

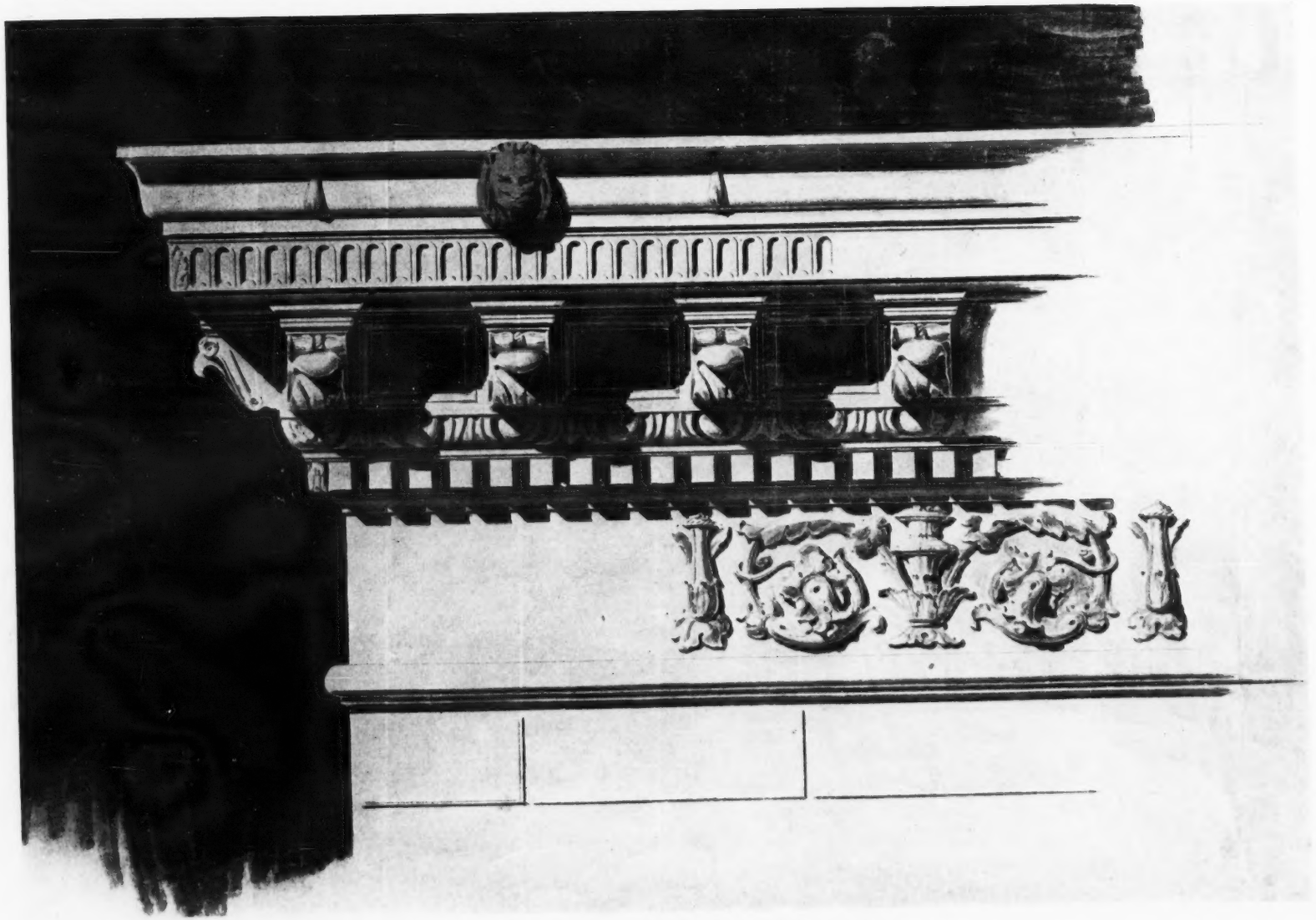
On the other side of this sheet are shown details from the double row of Ionic columns which supported the roof of the vestibule at the rear of the Doric portico of The Propylæum on the Acropolis, at Athens. The Propylæum was a notable example of the military architecture of the period and in addition it provided a noble entrance to the Acropolis. The Prolynæum was commenced about 437 B. C., by Mnesicles and was completed in five years.



PENCIL SKETCH BY ALBERT KAHN.

WROUGHT IRON WORK IN THE SOUTH KENSINGTON MUSEUM, LONDON, ENGLAND.

The page of sketches of iron work reproduced on the other side of this sheet has a double value. It represents a useful type of pencil study designed to preserve a record of detail sufficiently explicit for future reference while conveying the spirit of the original; and it also provides a most valuable collection of suggestions to the architect or designer engaged upon wrought iron work—it is interesting both as a drawing and as a document.



CHARCOAL STUDY OF DETAIL BY SCHELL LEWIS.
CHARLES A. PLATT, ARCHITECT

One of the studies of architectural detail made in the office of Mr. Charles A. Platt, architect, by Mr. Schell Lewis, is reproduced on the other side of this sheet. These drawings, as has been pointed out before in connection with the publication of Mr. Lewis's charcoal drawings, are made for the purpose of studying the detail in the process of designing, not for presentation. This medium, as handled by Mr. Lewis, lends itself to the making of very helpful studies with a saving of time over that which would be required in making similar studies in any other medium. They are admirably done.

PENCIL SKETCH OF WILLIAMSBURG BRIDGE, NEW YORK CITY
BY ERNEST WATSON.

An admirable sketch that renders the structural strength and comparative lightness of one of New York's great modern bridges, the activity along the water front and skilfully suggests the shipping by means of smoke clouds, wisps of steam, a stack and a spar or two, is the sketch by Mr. Ernest Watson, which is reproduced on the other side of this sheet. Sketching such subjects as this is especially valuable to the architect or draftsman who appreciates the necessity for "loosening up" in his manner of sketching and rendering architectural subjects.

ARCHITECTURAL DETAIL PART IX

BY JOHN VREDENBURGH VAN PELT

This is the ninth instalment of an article in which Mr. John Vredenburgh Van Pelt, formerly Professor in Charge of the College of Architecture, Cornell University, Architecte Diplomé par le Gouvernement Français, and author of "Essentials of Composition," will discuss the designing of good architectural detail and point out the means by which the ability to produce good detail can be developed. Reproductions of detail drawings from some of the best architectural offices will accompany this article and the publication of this series of drawings will be continued after this discussion of the subject has been completed—making a valuable feature of this journal indefinitely.

THE similarity, in qualities affecting the design of detail, between the softer sandstones and such limestones as "Bedford" has already been noted in an earlier article of this series. Although the hard grains of sandstone tend to abrade the planer knives, heating them so as to destroy temper as well as edge, the general characteristics of all except the harder varieties of this stone make the scale of mouldings appropriate to them, that appropriate for limestone. The following examples are therefore selected indiscriminately—although Brooks Brothers' is Bedford limestone, and St. Thomas's is Bowling Green stone.

A difference in the stratification makes it advisable to exercise more care in determining the way sandstone is to be laid. Marble may ordinarily be cut so that either the edges of the stratifications show, (the stone is laid on its natural bed), or so that, like plain sawed boards or a circular sawed crotch the stratification is on edge parallel to the face of the wall and a *fleuri* pattern shows. The better and usual limestones are also sufficiently homogeneous to permit them to be laid in practically any direction although certain government specifications require the stone laid with the stratification on edge and perpendicular to the face of the wall for projecting cornices and that other stones be laid on their natural bed. This does not follow with stones having cleavage beds and in this class are many sandstones. A notable example is the brownstone so extensively used in New York a few decades ago.

Our first illustration (page 24) is a closeup taken at the entrance to Brooks Brothers' building, 346 Madison Avenue, New York City, Benjamin Wistar Morris, Architect. The treatment of the mass of the wall surface that in the upper lefthand corner of our view is to my mind exceedingly agreeable. The varying depths of the indentation of the forty-five degree lines show uneven patches that make for a most interesting texture in the whole wall surface (unfortunately not adequately covered by our forcedly restricted photograph).

This work is called "parallel" or "forty five degree" tooth chiselling. I understand the building as first laid up was not well done and the whole exterior was resurfaced. That explains why the lines often run from stone to stone.

There are three different kinds of stone in this illustration, granite at the base, Indiana limestone above and a marble panel. The granite is probably patent hammered. At any rate there are six actual cuts to the inch. For the tooth chiselled limestone, previously referred to, the chisels appear to have been about an inch and a quarter wide and to have had nine teeth, six to the inch. Next to the moulding is a band of crandalled work (darker in tone) and the machine border of vertical tooling (lighter in color) has six bats. It is interesting to note that the hand work, both tool chiselling and crandalling, with their deeper irregular indentations cast deeper shadows and have absorbed much more dirt than the machine tooling or the rubbed mouldings and that this has been productive of a marked contrast of tone. It is also pertinent to remember that the granite with its lightly tooled or hammered finish, that was probably much darker than the limestone when the building was new, is now much lighter.

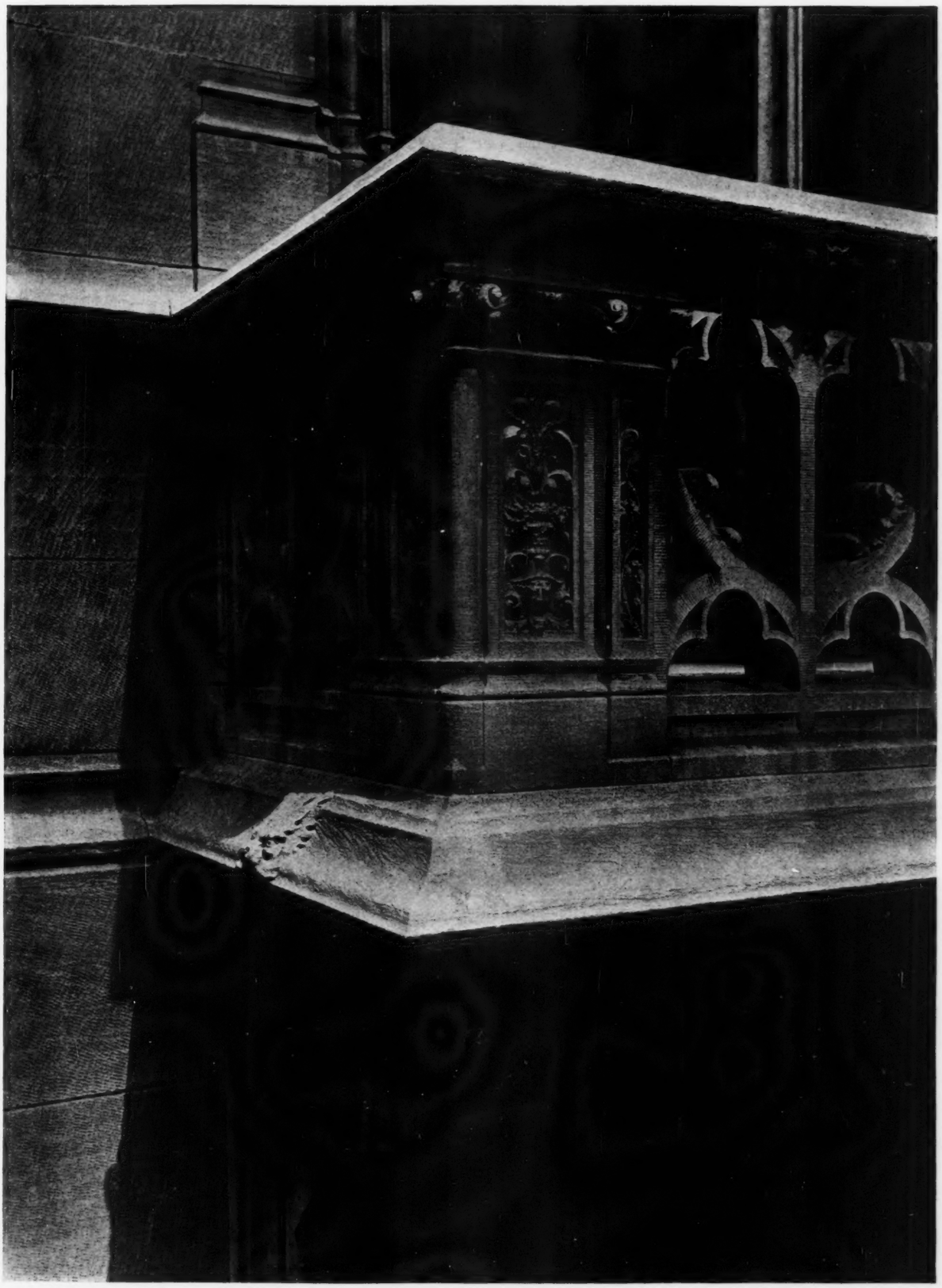
On pages 26 and 27 are two close-up views of the tooth chiselling of St. Thomas's porch. The stone courses vary from thirteen inches to nineteen inches in height with joints ¼″ wide slightly pressed back. The tooth chisels varied from seven teeth in two inches to six in one inch, while there are a few that appear to have three to the inch. The large washes have a hand-drove finish while, as noted in last month's article, most of the vertical shafts are machined with varying nicks in the tool. Notice the shaft in the lower right hand corner of page 26 where a stone was left too full and hand-tooled down to the proper size, its extreme lower edge, a drove finish, and the rest of it deeply tooth-chiselled. Also examine the stones at the left of this illustration. The faces turned away from us are tooth-chiselled over the whole surface, but the reveal that is directly toward us shows a surface roughly split off, the remainder tooth-chiselled for the top stone, a very irregular drove-chiselling for the second stone and for the third a tooth-chiselled field with a drove-chiselled border done in such a way that the tooth-chiselling seems to have extended over the whole face and then to have been dressed back and smoothed off to line.

Another sample of soft stone finish is the balcony of the Vanderbilt House page 25 of which the entrance was shown last month. Here the tooth-chiselling or crandalling (six to the inch) is more regular, but the drove work of the large moulds and washes has a great deal of character. The finer tooling of the fillets is eight bat, the coarser six bat. The background of the carved panels is finely pointed.

Before leaving this interesting subject of stone finishes and textures, it may be worth while to add a word about vermiculated rustications. A very

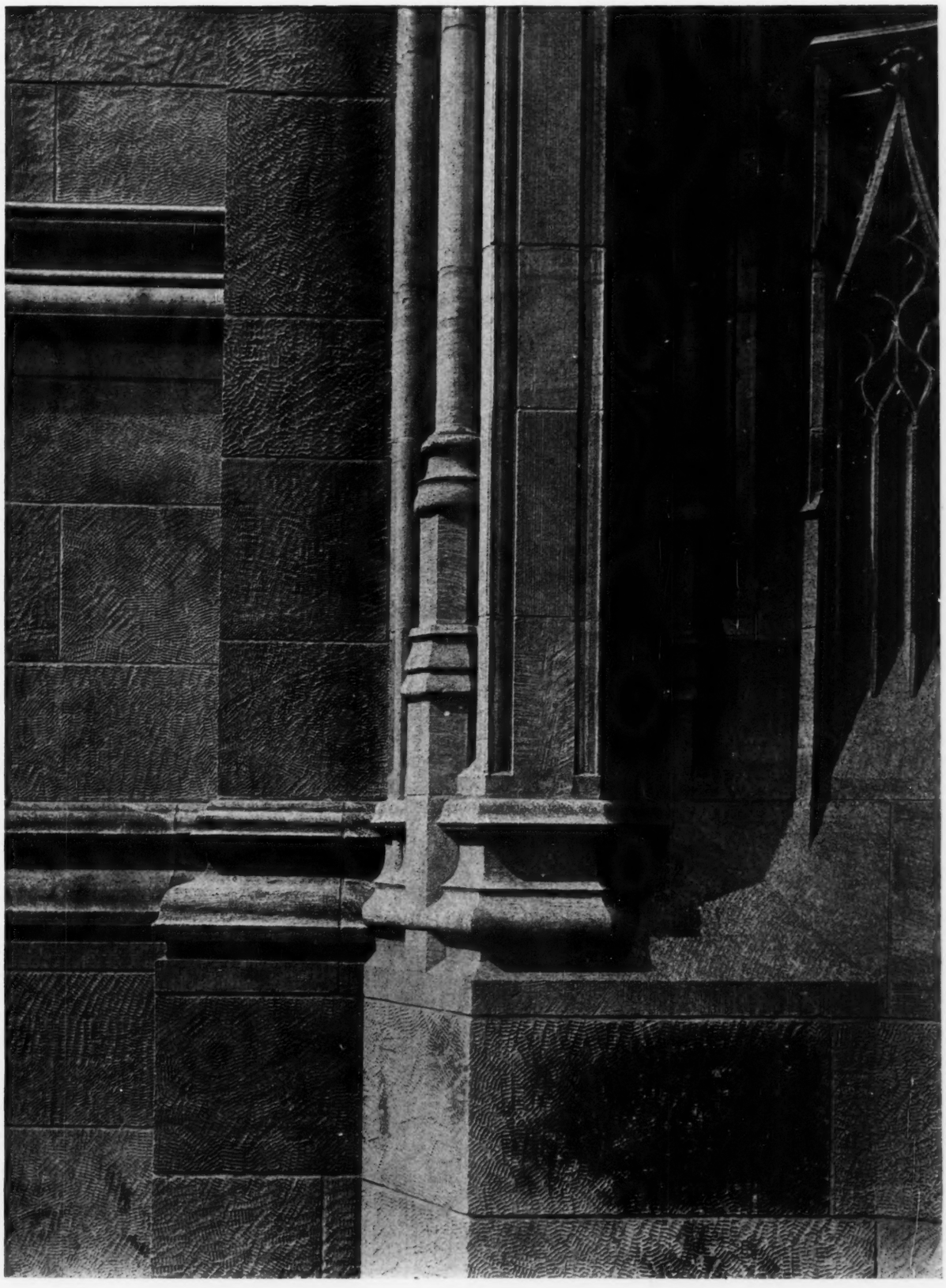
(*Continued on page* 38)

Detail of Brooks Brothers' Building, New York City.—Benjamin Wistar Morris, Architect.



Detail of the Vanderbilt House, New York City
Richard M. Hunt, Architect

Detail of St. Thomas's Church, New York City
Cram, Goodhue & Ferguson, Architects



Detail of St. Thomas's Church, New York City
Cram, Goodhue & Ferguson, Architects

PERSPECTIVE DRAWING, PART XIX

BY PAUL VALENTI

In this series of articles Mr. Valenti is taking the student step by step through a course in the direct construction or perspective plan method. Mr. Valenti, who is Instructor in Architecture at Washington University, St. Louis, Mo., is a graduate of The Royal Academy of Fine Arts of Brera, Milan, Italy, where he received the degree of Professor of Architecture. Mr. Valenti studied under Professor Ferrario, principal of the school of perspective at the Academy and scenographer at "La Scala," theater in Milan, and under other distinguished masters. Upon the investigations and the ripe practical experience of these men, he has based the course which he is presenting to the readers of this magazine. The method shown here, once it has been mastered, saves time and gives increased accuracy over the usual practice in laying out architectural perspectives instrumentally.—ED.

IN THE diagram Figure 51 the complete method of elimination is shown, confining our operations within the smallest possible area, and is the sum of the several short-cuts just previously demonstrated, together with an additional one, being merely the application of an elementary rule (given at the beginning) to new uses, resulting in increased brevity of operation. It will be noticed that we have in this diagram the exact results as obtained in the previous diagram in Figure 46, and the requirements of the problem are exactly the same (See Figures 46, 48, 48A and 49). This is precisely to show that the same results obtain, using the short-cut method. For example: Trace line *AB* arbitrarily and indefinitely (but in this case, at the same angle as was found in Figure 46 of a previous issue), which is at an arbitrary angle and represents one side of the object in perspective we wish to show. Now, on line *AB* select a point *E* also arbitrarily, but again in this case corresponding exactly to point *E* in Figure 46, since we are to show the object illustrated in this diagram exactly the same, and under identical conditions as called for in Figures 46, 48, 48A and 49 of previous issues, comparing the results obtained in Figure 46, with all its varied and tedious operations, with the results in this diagram in Figure 51, only to find that these results are exactly the same and the operations very much abbreviated. Continuing with the operation, at point *X*, which is the intersection of line *AB* and the left-hand limit of the picture, trace a horizontal across the picture plane indefinitely creating at this point *X* where line *AB* touches the picture, a geometric plane. Then from point *E* conduct first a straight line to the vision point *V* and another to the reduced distance point *D*÷3 on the left-hand margin of the picture as shown (Figures 51 and 51A). At point *N* where line *EV* intersects the horizontal *XZ*, lower a perpendicular indefinitely, and with an opening equal to *NL*—point *Z* being the intersection of line *E D*÷3 and the horizontal *XZ*—mark off *three* equal spacings on this vertical and find point *Y*. (It will be observed that this operation is the *reverse* to the normal operation used in all previous cases. Here we are working from the perspective to the geometric instead of from the geometric to the perspective. See Figure 22 in a previous issue.) Uniting point *X* with point *Y* we will find the geometric representation of the perspective line *XE*. From point *Y* conduct a straight line at 90 degrees as shown, until it intersects the horizontal *XZ* or the geometric plane at point *Z* (line *XZ* as explained, represents the line dividing the perspective plane from the geometric plane and is common to both). Proceeding, unite point *E* with point *Z* and continue this line until it intersects the horizon line at *V P II* or Vanishing Point No. 2—(Vanishing Point No. I or *V P I*) being the prolongation of line *EX* until it also intersects the horizon line as shown in Figures 51 and 51A. It will be noticed

Note.—In order to clarify this operation, consider it first as shown in Figure 51A which illustrates the same operation minus the remaining structure lines.

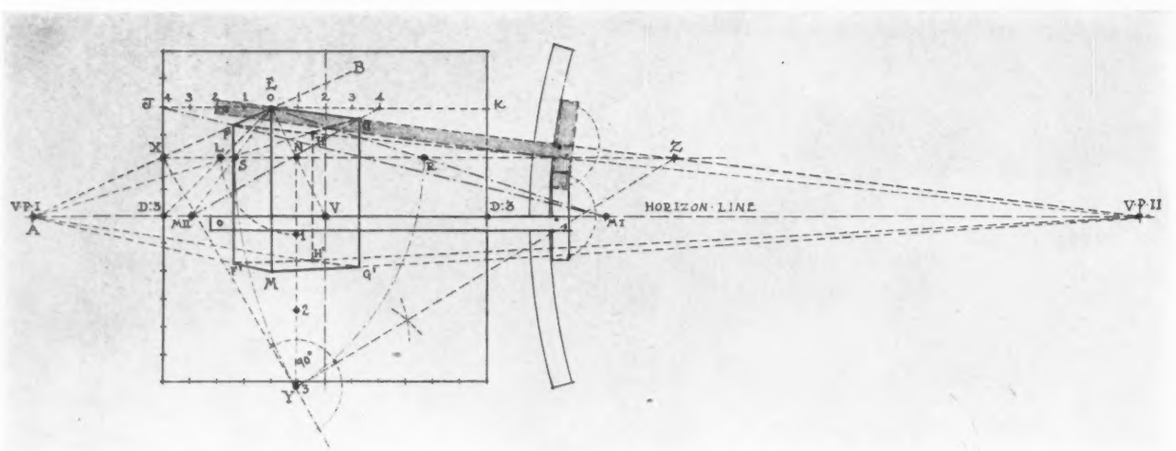


Figure 51

that the triangle *XYZ* is the geometric representation of the perspective triangle *XEZ*. This condensation of operations has been obtained by creating a geometric plane at point *X* where the perspective line *AB* intersects the picture plane. Notice that at this point or below line *XZ* (the newly created geometric plane) with the *reverse* operations as formerly conducted laying out the geometric form of an angle at 90 degrees as required by this problem, we can raise a *perpendicular in perspective* from point *E*, by uniting this point with point *Z* already found, (which is the intersection of line *YZ*, representing the other side of the object in the *geometric* plane, with the horizontal *XZ* or line in common between the perspective plane and the newly created geometric plane). Tangent to point *E* trace another horizontal *JK* parallel to the horizon line, and from point *E* raise a perpendicular *EM* indefinitely, but in this case equal to 60 units as required by Figures 49 and 48A (previous issue). Now it will be noticed that in line *JK* we have created another geometric plane which is common with the picture plane and also with line *EM* which represents the corner of our object directly behind the transparent plane and tangent with it. As a consequence we can operate on these two lines, that is, line *JK* and *EM*, in the scale of the picture, as was done in Figure 50 (of previous issue), proceed by finding the two measuring points, by first centering in point *X* with radius *XY*, describe arc *YR*, and conducting a straight line from point *E* through this point *R* which is the intersection of arc *YR* with line *XZ*, until it intersects the horizon line, and there find point *MI* or measuring point *No. 1*. Then centering in point *Z* repeat the operation by describing an arc with radius *ZY* intersecting line *XZ* at point *S*. Conduct a straight line from point *E* through point *S* until it intersects the horizon line and find measuring *point MII* or measuring point *No. 2*. (See Figure 46 and text). Recalling the conditions of the problem as required in Figures 48, 48A and 49, we know that the object in question is to be viewed starting below the horizon 20 units and extending 60 units high; that the observer is to stand 20 units to the *right* of the nearest corner of the object, and that in plan the object is 4 units square. Point *M* we will place 20 units below the horizon line, point *E* having already been placed 40 units above, making the 60 units required. The plan of the object being 4 units square as already quoted, place 4 units both to the right and to the left of point *E* on line *JK* and using first the measuring point *No. 1*, conduct a straight line first from point 4 to the *left* of point *E* on line *JK* to this point *MI*, intersecting line *AB* at point *F*. Then using measuring point *No. 2* or *MII* conduct a straight line from point 4 to the *right* of point *E* to this measuring point *No. 2*, intersecting line *EZ* at point *G*. From point *M* trace straight lines to the two vanishing points *V P I* and *V P II*, respectively, and lowering perpendiculars from points *F* and *G* already found, until they intersect lines *M V P I* and *M V P II*, we will find points *F'* and *G'*, thus completing two sides of the object. Then from points *F F'* and *G G'*, using the two vanishing points again respectively, we will find points *H* and *H'*, thus completing the object in perspective. Using the curve and perspective T-square as suggested in Figure 47 we will find that we have obtained exactly the same results as in Figure 46, having eliminated the *geometric plane, the full distance points* and *Vanishing point No. 2*, all of which were far removed from the area of our operations, thus enabling us to operate in the smallest possible area. Compare Figure 46 with Figure 51 and the brevity of operations in this last is readily observed. From this point on we shall use this abbreviated method entirely, and endeavor to solve problems from the simplest to the more complicated ones.

Note.—In the instalments of his article to be published in early issues Mr. Valenti will show the practical application to office work of the short method of laying out perspectives which has been described here, a method which those who have followed his demonstration of the underlying principles in previous issues will be able to use intelligently and rapidly.—Ed.

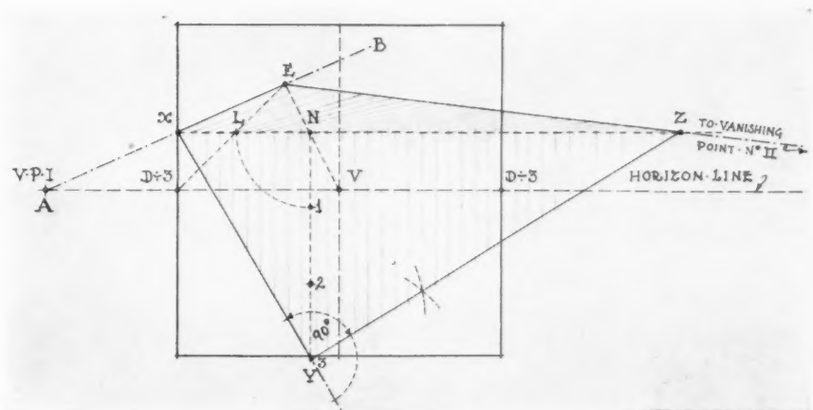


Figure 51A

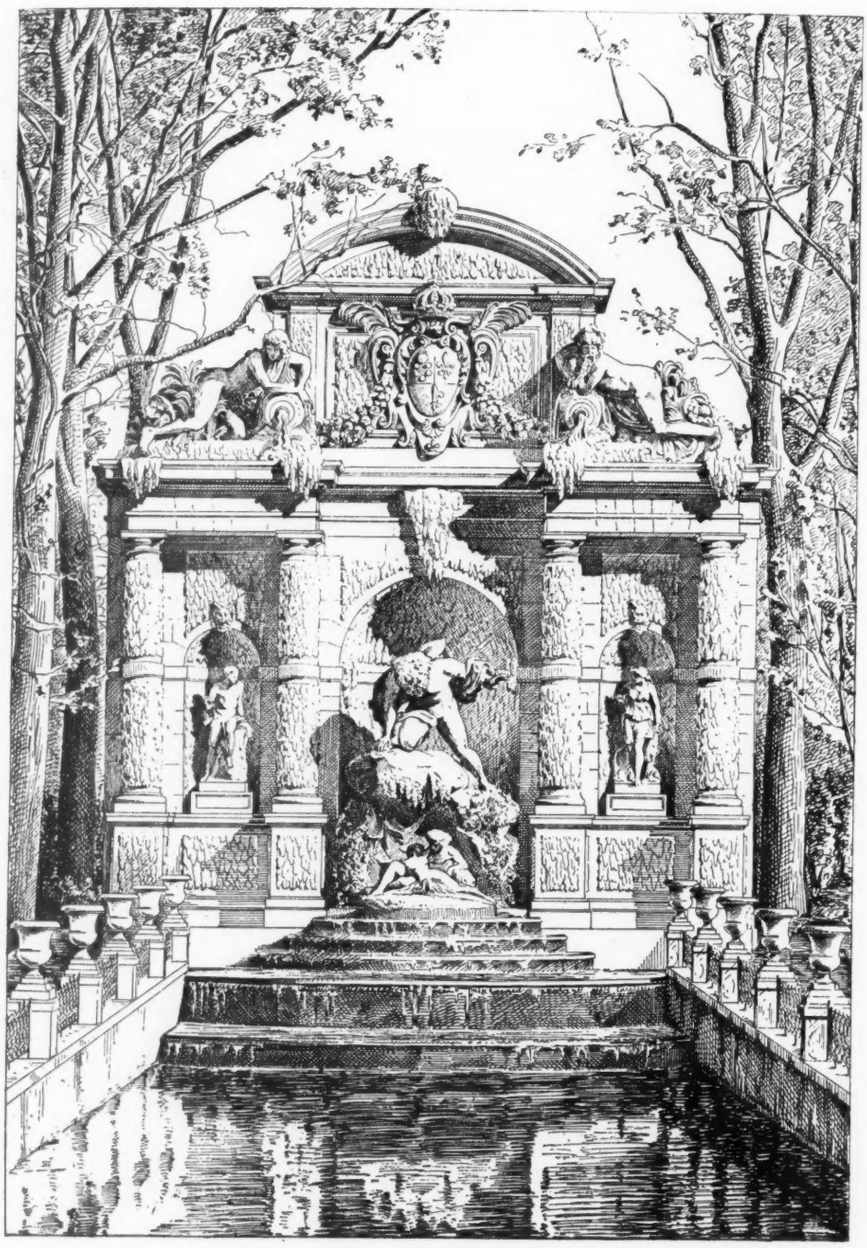


Figure 124. Fontaine Medicis, the Luxembourg, Paris. From J. Gwadet's "Eléments et Théorie de l'Architecture. Stone carving in the form of stalactites to harmonize with the cascade and emphasize the water idea of the program.

THE STUDY OF ARCHITECTURAL DESIGN

WITH SPECIAL REFERENCE TO THE PROGRAM OF THE BEAUX-ARTS INSTITUTE OF DESIGN

CLASS B. PLAN PROBLEM. PART IV.

Character in Design

BY JOHN F. HARBESON

In this series of articles, which began in January, 1921, Mr. Harbeson is explaining the method of working and how to get the greatest benefit in following the program of The Beaux-Arts Institute of Design. It is not intended as a substitute for personal instruction and criticism. The "Analytique" was treated in issues for February to September, 1921, inclusive.—ED.

BUILDINGS serve many different purposes, are built with many different materials, and by men of different minds. It is, therefore, natural that structures of a class have come to have some things in common with other buildings of that class, so much so that we now feel the need of definite "character" in all buildings, so that a religious building always gives a religious sensation, a domestic building gives the atmosphere of intimacy, a fortress appears strong — and this, aside from the actual fulfillment of the conditions of the program.

It will be seen that the word "character" means many things: there is the question of style, or period. It is possible to get the character of a "period." It is also possible, within such a style, to get the character of the uses of the building. We all have seen in the recent popular revival of the "Adam" style in New York, city houses, apartment buildings, hotels, banks, office buildings and churches —all undeniably Adam in inspiration, and yet the good examples are likewise undeniably religious, commercial, domestic, etc., as the case may be. Then, there is the question of the size and scale of the building being designed, of the materials of which it is made, and most important of all, of the uses to which it is to be put— commemorative or utilitarian, domestic or public, religious or secular, etc., and then in each of the big classes are subdivisions; i. e., if domestic, whether city, suburban, or country house, whether small or large. Each type of religion has in its growth assumed special attributes which give character to its architecture. A synagogue is of a type different from a Christian church; the Christian Scientists, though young as a religion, have already a well defined type of architecture. A commercial building will be treated very differently if it is a bank, or a factory, a storage house or a loft building.

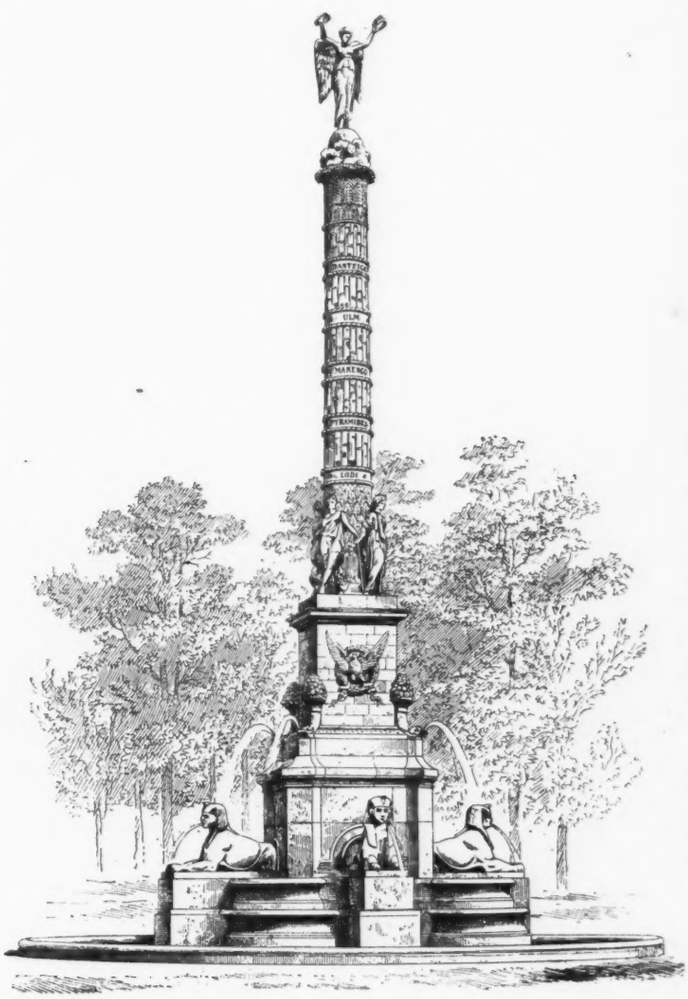


Figure 121. Colonne du Châtelet, Paris. From J. Guadet's "Eléments et Théorie de l'Architecture."

This "character" of buildings may be the result partly of the use of detail, surface indication— the use of the musical instrument in the decorative motives in a concert hall, of the mask in a theatre, of angels

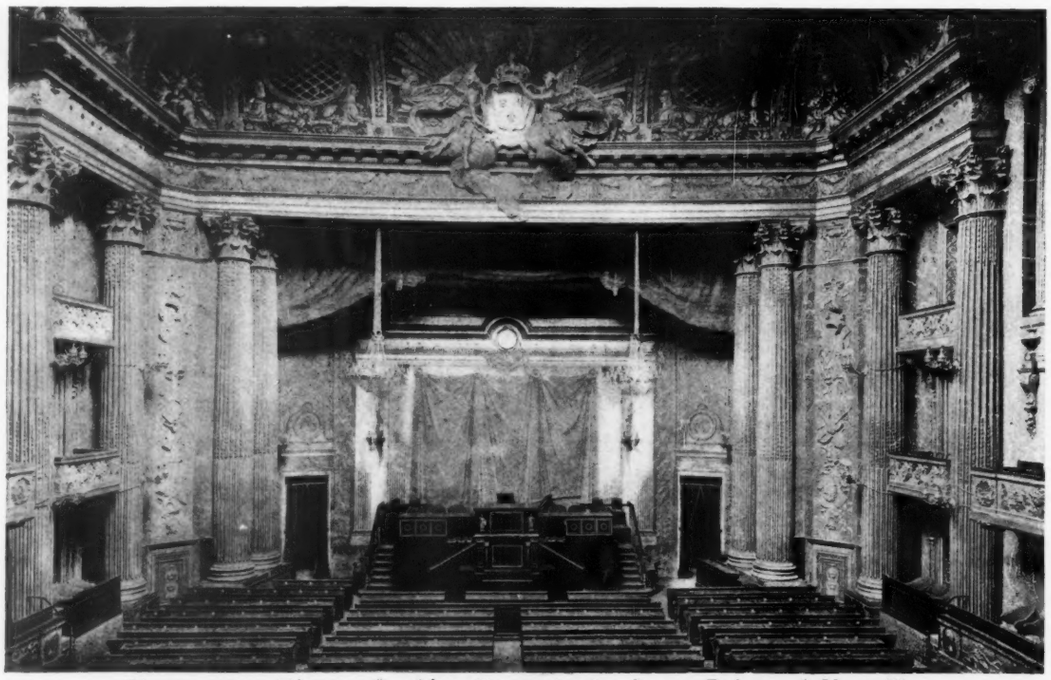


Figure 127. Theatre Looking Towards the Stage, Palace of Versailles.

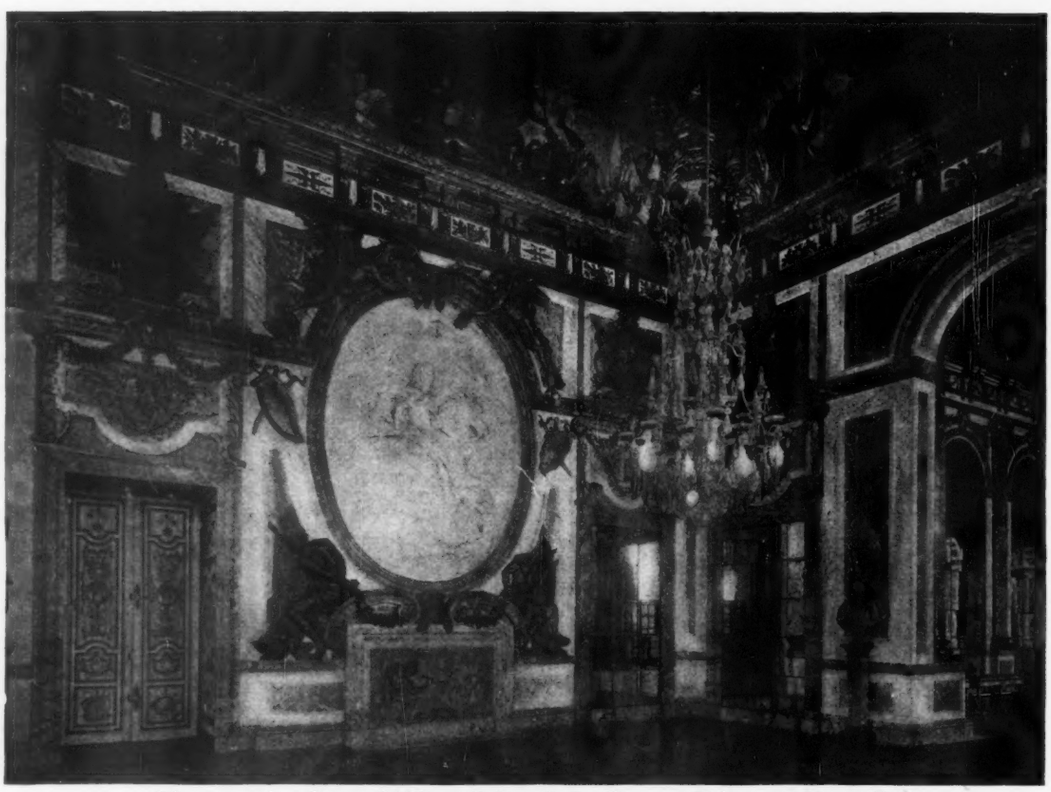


Figure 126. General View, Salon de la Guerre, Palace of Versailles.

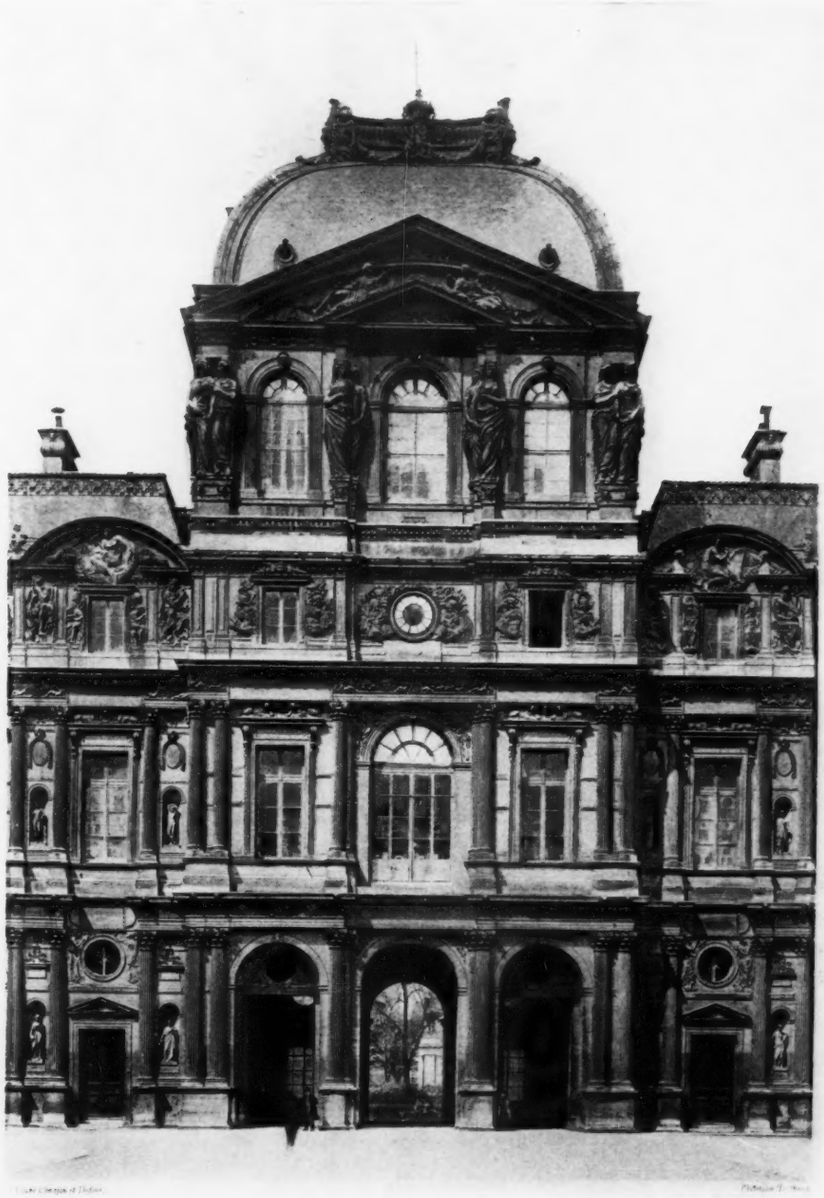


Figure 125. Pavillon Sully, General View of the Façade on the Court of the Louvre. Built by Jacques Le Mercier in the Reign of Louis XIII. An extreme example of a structure designed to reflect the influence and power of the one for whom it was built. From "L'Architecture et la Décoration aux Palais du Louvre et des Tuileries."

in a church, the victory with the laurel wreaths of Figure 121, etc. —or they may result mainly from conditions of program—the large amount of wall taken for windows in schools and factories, where light is so necessary; or the blank walls of storage buildings, such as Figure 122, a Grand Prix de Rome design "A Repository for the Archives of the Ministry of War," where a window is a disadvantage as it lessens the strength of the building, or is at least an unwarranted expense; or it may result simply from "tradition" — from what has been done before in similar cases.

If a church had become known far and wide as a lovely work, or even if because of some reason not connected with architecture itself—if large numbers of people had come on pilgrimage to see the performing of miracles of healing, or to hear one whose fame as a preacher had spread far and wide, common occurrences in the middle ages—countless people took home with them memories of chapels which had a new interest, and copies, or what in those pre-photographic days people believed were copies, were built throughout the country.

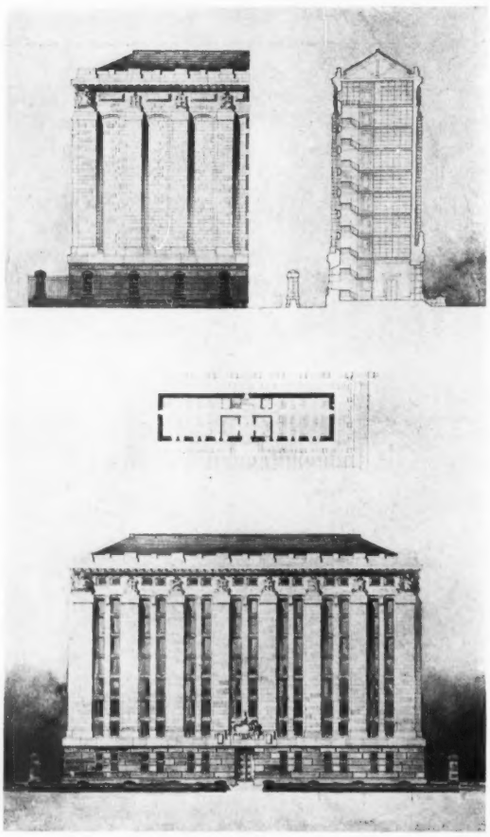


Figure 122. A Repository for the Archives of the Ministry of War. From "Les Concours d'Architecture," Ecole des Beaux Arts, Paris. Design by Mr. Holabird, Pupil of M. Redon.

In fact it was the custom in those days, when a church was to be built, to send the master-builder on tour with instructions to look at—to make note and take measurements of—a chapel here, an ambulatory there, a crypt in this town, a chapter house in that, which had impressed the bishop or other dignitary responsible for the work. Such a pilgrimage has been preserved to us in the book of Villard de Honnecourt, who made such notes for a French cathedral, travelling as far as Hungary. Figure 123 is one of the notes he so made. In this way the "tradition" of church architecture spread.

The character of all classes of buildings has been moulded in similar fashion. Even when the Renaissance changed the forms of architectural thought, changed the forms of construction, back from complicated systems of counter-balanced thrusts, the stone vaults high in air, resting on thin points of support, to the simpler system of post and lintel and the more elementary vault forms there were still many minor elements of architectural design that carried over from one to the other in each type of building.

It is for this reason that armories and prisons are treated as if they were fortresses, made to withstand an attack from without, while banks—which need as much to guard their contents from outside assault, and do aim to have an appearance of strength and solidity—endeavor to disguise this characteristic somewhat in order to be inviting enough to draw in customers.

To make use of this strong element of tradition in architectural design, we study examples of previous work. One of the best aids to such a study is the reading of the chapter in Guadet's "Eléments et Théorie de l'Architecture" appropriate to each program. Study so inspired will cultivate the imagination and form the habit of allowing one impression to suggest another; and if one can at the same time stimulate the memory to retain

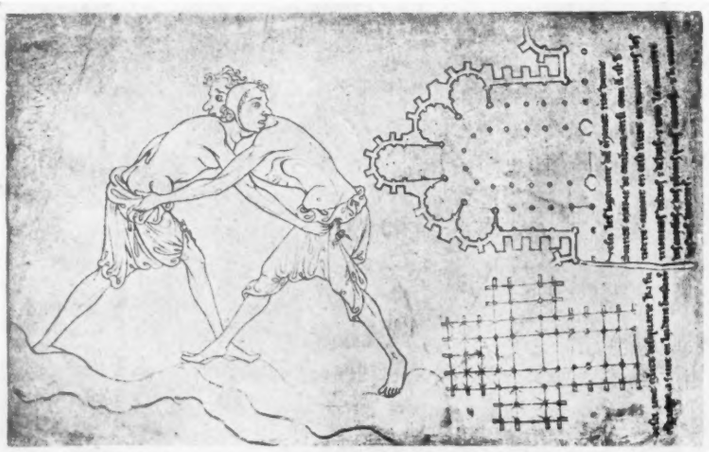


Figure 123. Drawing by Villard de Honnecourt. From Reginald Bloomfield's "Architectural Drawing and Draughtsmen." Published by Cassell & Company, Ltd., London.

these impressions it is possible to develop a working "vocabulary" of architectural forms and decorative motives.

Building ranges between two extremes—the useful, and the ideal; usually it partakes of each of these in some proportion. Figure 121 is an exemplification of the "ideal"—it is a commemorative monument without any touch of the funereal. Here the column is surmounted by a victory, is banded with the names of victorious campaigns and in addition to the laurel wreath of achievement, are the eagle of empire, the horns of plenty; and the sphinxes at the base, recalling the Egyptian campaign, give a softening effect both to the lines of the composition, easing the vertical lines of the column into the horizontal of the ground, and to the general effect of the idea by the jets and pools of water. In the Medecis Fountain at Paris, Figure 124, the stone is cut in the form of stalactites to harmonize with the cascade below and emphasize the water idea of the program.

Aside from the uses of the structure, certain ideas should be typified in it. If it is to be monumental, that feeling, the idea of something superhuman, may be obtained by an excess of mass, by heavy supports, while if domestic the masses are small and rather informal.

The influence and power of the one for whom a structure is built are frequently reflected in architecture. As an extreme, in the Pavillon Sully, of the Louvre, Figure 125, built by a king with enormous wealth at his disposal, note the richness of the architecture. Almost every moulding is carved, each one with different motives, shells, leaves, garlands, cupids; in real stone, the work done by master craftsmen. In the pediments, over the windows, in the niches, is exquisite sculpture. Even the roofs are ornamented with richly designed and wrought leadwork. In this country architecture such as this would be out of place, as we have no element in society that can afford to give the impression of being as wealthy as a king, except in interiors, where such richness would not be apparent to the public.

In the palace at Versailles, (See Figures 126 and 127, from "L'Architecture et la Décoration aux Palais de Versailles et des Trianons") there is the same richness and profusion of ornament and material, especially in the "Salon de la Guerre," real marble, real bronze, paintings by good masters, stucco work by clever sculptors, chandeliers ornate with crystals, but well designed and well executed.

Where such an effect of richness is attempted without the use of the genuine materials, or without the skill of well-trained craftsmen, as in many of our theatres and moving-picture houses, the result is very unsatisfactory to anyone who knows the originals.

There is also the question of the difference in character between an interior and an exterior—the latter with its smaller scale motives, because they must be seen at closer range, with its absence of such forms as pediments and drip moulds, etc., which are the result of exterior conditions. It is needless to say in this connection, that in design almost every rule has been broken by a master at some time; that, for instance, pediments are used as interior decoration, but in such cases the form is changed in character to partake of the spirit of the interior, becomes in fact a "decorative" motive only.

Allied to this is the question of the effect of materials on character. Wood is capable of being worked at much finer scale than stone, for instance, and limestones and marbles may suitably be carved in finer scale than granite.

A stone column, with a bronze cap and base, would have those members at a much finer scale than the shaft—finer mouldings, thinner edges, more delicate ornament, etc.

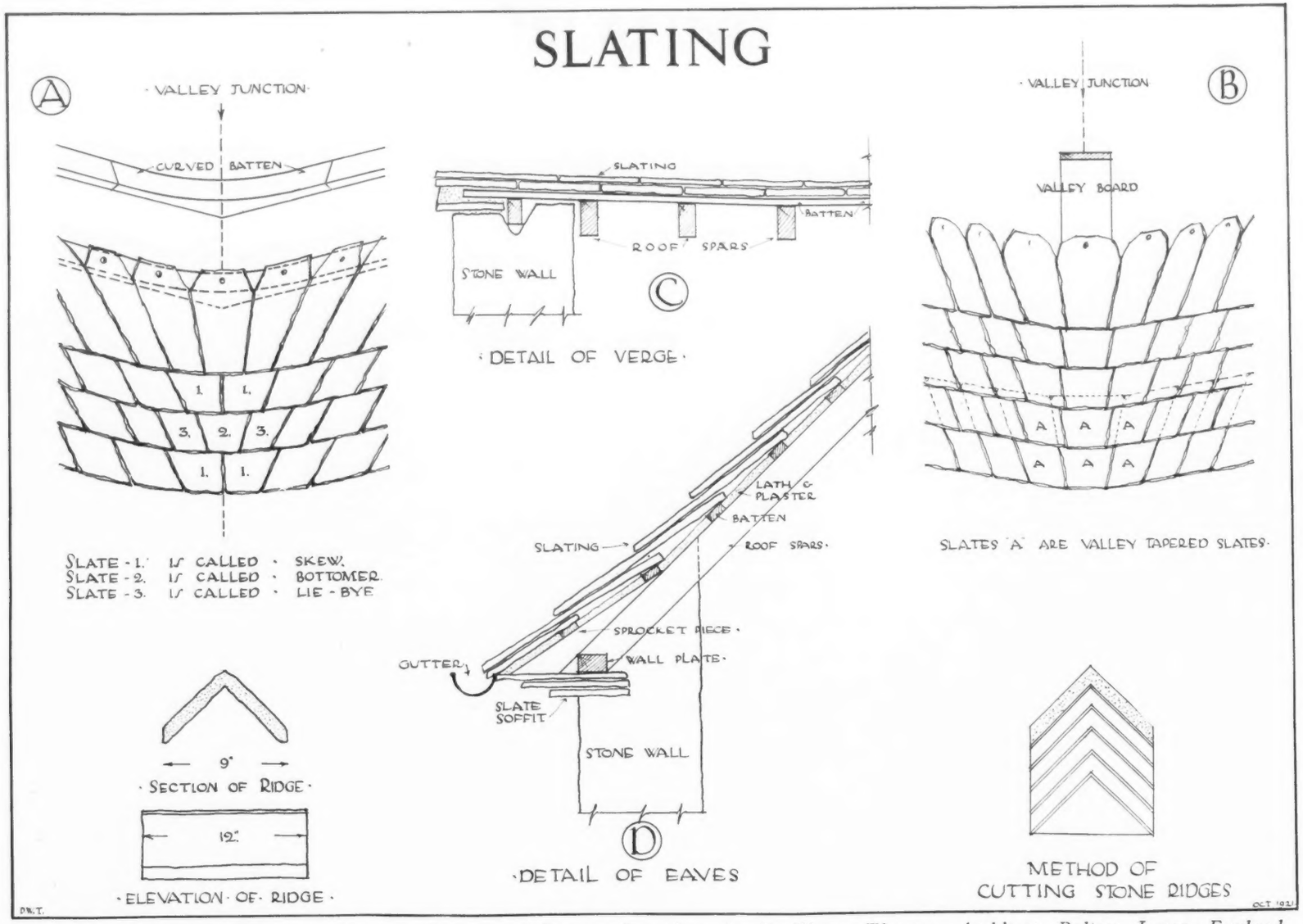
There would be a difference in character between a wrought metal grille and one of cast metal, and a difference between one of iron and one of bronze. Each material imposes conditions which are inherent in its make-up which make for the beauty of that material. It is possible to make bronze grilles that look like wrought-iron, wood mouldings that look like stone, etc., but that does not make for beauty in design.

It is possible to show character of design in plan, in the design of the elements of the plan, and of the points of poché, as well as in the indication of "mosaic," of furniture, or ceiling and floor patterns. Of this we shall speak in the next number.

COMPETITION OPEN FOR DESIGN OF A SYMBOL.

A COMPETITION will be held under the auspices of The Architectural League of New York for prizes aggregating $250, for the design of a symbol in illustration of the spirit and purpose of The English-Speaking Union, incorporated in the U. S. A. in 1920. The organization is non-political and non-sectarian. Its specific field of activity is that of cultivating the most cordial and helpful relations between all the English-speaking peoples; including not only the peoples of the United States of America and the British Isles, but also the English-speaking people of Canada, Australia, New Zealand, etc., regarded as more or less distinct units. The organization contemplates the adoption of a motto or slogan as an expression of its spirit and purpose and this slogan may or may not be combined with or used with the symbolic design. It is hoped that something more live and human than a conventional flag or seal design will be chosen by the competitors entering.

Drawings must be delivered on or before January 16, 1922, at the rooms of The Architectural League of New York, 215 West 57th Street, New York City. Anyone contemplating entering should write promptly to the Committee on Competitions and Awards of the Architectural League of New York, at the above address, for full particulars as the closing date is near.



Methods of Finishing Slates to Valleys, Verges and Eaves. Drawings by D. Wynne-Thomas, Architect, Bolton, Lancs, England.

See text on page 37.

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ENGLISH METHODS OF SLATING.

IN RESPONSE to a request from the editor of PENCIL POINTS, Mr. D. Wynne-Thomas, M. S. A., Architect, St. Paul's Old Vicarage, Halliwell, Bolton, England, has prepared the sheet of details reproduced on the opposite page and the brief description of English methods of slating published below. Since the inspiration for so many of our country houses is drawn from English domestic architecture the methods by which the slating of valleys, verges and eaves is done in England should prove of interest, though adaptations to our conditions are, of course, necessary.

The accompanying illustrations indicate certain methods of finishing slates to valleys, verges and eaves.

Figure A shows the old method of slating valleys without lead. Curved firrings spaced the same distance apart as the battens are fixed in the valley on boards, or as an alternative the roof boarding may be nailed on the curved firrings, with the slates laid direct to the boarding. The slates are split from large blocks of laminated stone, and cut into various sizes ranging from two feet, six inches to ten inches in length. The longer slates are laid next the eaves, and each successive course diminishes in length towards the ridge. In some cases the spaces between the slate battens are lathed and plastered with stone lime plaster, and each slate is fixed by means of oak pegs.

The ridges are covered with sawn stone ridge piece about twelve inches long and nine inches wide, and cut out of stone blocks as shown on the drawing. *Figure B* indicates another method of preparing valleys in the northern districts. The usual valley board is adopted and the valley slates are specially cut and tapered.

Figure C is a treatment for finishing gables. The two end spars are lifted an inch or so above the remaining spars to give a tilt to the roof. A smaller size rafter fixed in a "pocket" of the wide stone wall is sometimes considered a necessity to secure rigidity at the ends of the battens. The eaves as shown in *Figure D* are laid in the usual way, and a good effect is obtained by using a few courses of broken slates as a soffit.

THE DALLAS ARCHITECTURAL CLUB.

IN THE past two months things have been moving very fast in the club, there have been some very interesting meetings, and the talks before the club that have been of great educational value and have been enthusiastically received.

The Entertainment Committee has worked out a very interesting program for the season. They are having their speakers build a building, that is, each speaker has a subject dealing with a certain portion of a building which includes subjects beginning with the financing of the building to the turning over of that building to the owners.

The first speaker was Mr. Chas. Austin, Treasurer of the Dallas Bank and Trust Company; he was followed by Mr. George Mahoney of the MacArthur Concrete Pile and Foundation Company at the next meeting. The next speaker was Mr. M. Payne of the Pittsburgh Testing Laboratories, who gave a very interesting talk on "The Testing of Materials."

At the last meeting Mr. Howard Paine of the Frazer Brick Company, took for his subject, "Hollow and Interlocking Tile Construction," which was illustrated with two reels of motion pictures showing the manufacture and uses of hollow tile.

Notwithstanding this the members are not a very serious outfit, as those who were at the Thanksgiving Blow-out can testify—all the turkey and cranberry sauce and fixin's one could wish for. There was also a dandy program of vodvil acts and the meeting lasted far into the night. The next meeting is a Christmas meeting with a good time for all.

The club would like to get in touch with other clubs throughout the country and find out what they are doing in an educational way.

The club has new quarters in the Hotel Jefferson.

The Dallas Architectural Club will hold its first annual exhibition of Texas Work at the Hotel Jefferson, between February 11 and 18, 1922. The exhibition will comprise: photographs of executed work, drawings, renderings, sketches, models, sculpture, and decorative arts. The exhibition will be followed by the publication of a year book of work taken from the exhibition. Honorable mentions will be awarded by three competent judges. Lectures on the arts will be given daily.

THE ARCHITECTURAL ALLIANCE OF NEW YORK

A LECTURE of unusual interest was given November 29, under the auspices of The Architectural Alliance of New York, by Mr. William Wilson, formerly superintendent for Murphy & Dana, Architects, at Tokio.

Mr. Wilson's subject was "Japan and the Orient" and he spoke in an interesting and instructive manner on the government, religion, ambitions and life of our neighbors of the Far East. Coming at the time of the conference in Washington, this lecture was of special interest. Many beautiful stereopticon views were used to show the art of Japan as represented by temples, palaces, gardens, lacquer work, and minor utensils. Of particular interest to the architectural men were the views showing the construction of the work with which Mr. Wilson was identified, also some small Japanese homes. From his fund of personal anecdotes Mr. Wilson gave illustrations of the fact that "East is East and West is West," bringing out the differences in the Oriental and Occidental viewpoints and adding to the interest of his talk.

This lecture was the first of a series of talks to be given under the Architectural Alliance of New York. This organization of draftsmen is endeavoring to provide interesting social and educational activities for its members and friends. Draftsmen who wish to know more about this organization should communicate with H. D. Vernam, 1717 East 18th Street, Brooklyn, N. Y.

PITTSBURGH ARCHITECTURAL CLUB.

A MEETING was held jointly by the Pittsburgh Architectural Club and the Pittsburgh Chapter of the A. I. A., at the Schenley Hotel Grill on November 31. Supper was served for about thirty-five. Following the meeting and supper, the Club and Chapter adjourned to the art galleries of the Carnegie Museum to view the Architectural Exhibition of the Pittsburgh Architectural Club. The exhibition was devoted entirely to the work of Pittsburgh architects and as a special feature the work of Mr. Sternfelt and Mr. Ellington, recent winners of the Paris Prize.

Issues of PENCIL POINTS *previous to May, 1921, are out of print.*

QUERIES

In this department PENCIL POINTS *will endeavor to answer questions of general interest pertaining to Architecture and allied arts, giving the best available information from authoritative sources. We desire that you feel free at all times to make use of this service, inviting your co-operation in making the department both interesting and valuable. Should you desire an answer by mail, enclose stamp for reply. Address queries to The Editor,* PENCIL POINTS, *Metropolitan Tower, New York City.*

Question—Can you inform me how I can take work with the Beaux-Arts Institute of Design, as there is no atelier in the city in which I live? R. L. T. *Answer*—If there is no atelier in a place near enough for you to attend, the Beaux-Arts Institute of Design will either appoint as correspondent an architect in your city under whom you can study, or will conduct your work directly from the headquarters in New York. Write to Beaux-Arts Institute of Design, 126 East 75th Street, New York City.

Question—Will you please give me the names of the best works on Gothic Architecture, both elementary and advanced, also the best works on Colonial Architecture? A. C. L. *Answer*—Opinions as to the best books differ but we would make the following suggestions: Francis Bond's books on Gothic Architecture (English) are of a general character and so far as a general treatment is concerned are excellent. There is a small book of a general character on Gothic Architecture (English) by Bannister Fletcher. Thomas Graham Jackson's book on French and Italian Gothic Architecture (2 vols., 1915, University of Chicago Press) is excellent. There is, of course, Violett le Duc's treatment of French Gothic. Thomas King's book on the mediæval architecture of Germany and the Netherlands ably treats this division of the subject. On Colonial Architecture you will find the following books very valuable: "Colonial Architecture in New England," by Corner and Soderholtz, Pub. Bates & Guild, 1901; "Colonial Architecture in Pennsylvania and Virginia," by Chandler, Pub. Bates, Kimball & Guild, 1892; "The Georgian Period." Some of these books are rare but may be found in some of the public libraries and in special architectural libraries connected with schools of architecture. Among the very helpful books on Colonial Architecture which are not out of print, and can, consequently, be had without paying an advanced price are the following: "The Brick Architecture of the Colonial Period in Maryland and Virginia," by Lewis A. Coffin and Arthur C. Holden: "Some Colonial and Georgian Houses," by Donald Millar; "Details from Old New England Houses," Howe and Fuller; "Old Philadelphia Details," by Sims and Willing; "Measured Drawings of Georgian Architecture in the District of Columbia, 1750-1820," by Cunningham, Younger and Smith.

Question—Will you kindly inform me of any publications dealing with the planning of gymnasiums? A. R. S.

Answer—We refer you to the following magazine articles: "The Public Baths and Gymnasium Building Competition" in *The Brickbuilder*, Boston, 1910; "Gymnasiums, Their Plan and Equipment," by M. B. Reach, in *The Brickbuilder*, Boston, 1909; "Plan of the Flagler Gymnasium, Florida Architectural College, Lake City, Florida," *The Architectural Review*, June, 1902.

YORK & SAWYER'S OFFICE FORCE HOLD ANNUAL CHRISTMAS DINNER.

THE office force of the firm of York & Sawyer, Architects, New York, held their annual Christmas dinner at Keene's English Chop House, 36th Street and Sixth Avenue, on the evening of Thursday, December 22. There were present more than sixty representatives of the youth of the architectural profession (as everyone claimed to be under forty when a member of the firm asked whether a man over forty was useful to the profession). The design of the dinner cover card was the result of a competition in which Mr. M. Palmer Sabin won. During the course of the dinner an enjoyable musical program was rendered with a lot of pep by the group of men known to their colleagues as "the office vocalion." After the nuts had been cracked and the tables had been cleared for action, Mr. Norman G. Nims presided as toast-master. Everyone enjoyed the occasion and in spite of the fact that it was a late hour when the gathering dispersed, there was a good attendance at the office next morning.

ARCHITECTURAL DETAIL. PART IX.

(*Continued from page 23*)

fair example, to be seen in New York, is that of the twin houses just north of the Union Club at 645 and 647 Fifth Avenue (Hunt & Hunt, Architects). The joints of the rustications have a flat fillet at the back ¾″ to ⅞″ wide, then an inclined forty-five degree wash above and below with a narrow fillet at the extreme top and bottom between the vermiculated face of the *bossages* so that the whole width between these vermiculated faces is five inches wide and the extreme projection three inches, with courses two feet high. The vermiculations themselves are about an inch wide, have an inch of pointed stone (three pointed indentations to the inch) between them and ⅞″ deep. The material is marble. The chamfers and fillets between the vermiculated faces are rubbed. Work such as this is really stone carving and is necessarily expensive. It looks forced and unnatural and certainly has not the charm of more simple and accidental finishes such as those of the Brooks Brothers' building and St. Thomas's Church.

ALBERT FERRAN AND JEAN JACQUES HAFFNER TO TEACH HERE.

TWO distinguished French architects, Albert Ferran and Jean Jacques Haffner, both of them winners of the Grand Prix de Rome, one of the highest honors to which architects aspire, have accepted invitations to come to this country to teach. Ferran will have charge of design at the Massachusetts Institute of Technology, where he will hold a professorship, while Haffner will be professor of design at the School of Architecture at Harvard.

ARTHUR CRISP

ARTHUR CRISP, whose mural paintings, designs for large batik hangings containing allegorical figure subjects, and other works have won him distinction, has his studio in New York City, but was born in Hamilton, Canada. He spent some time in an art school of the type to be found in the smaller cities and this served at least to keep alive his interest in drawing. In 1900 Mr. Crisp came to New York and entered the Art Students' League, studying there in his free time while he was employed in an office. During the two years he studied at the League he had as instructors Bryson Burroughs, Frank Vincent Du Mond, and a number of other men whose names are well known in the art world. From Mr. Du Mond and Mr. Burroughs, Mr. Crisp feels that he received especially valuable help and a knowledge of the philosophy of drawing. These two years of study ended his school career and marked the beginning of his real study and research. Among the later influences that helped in Mr. Crisp's development were the works of Maxfield Parrish, Aubrey Beardsley, Puvis de Chavannes, and the art works of Persia, China, Egypt, and of the Maya Indians. Of these, Mr. Crisp considers that the work of Aubrey Beardsley, Puvis de Chevannes, and Persian art, have most influenced his work. Mr. Crisp's training has been obtained entirely on this side of the water, as he has never been abroad. He firmly believes that it would be better if more American artists followed the same course in this respect.

Mr. Crisp has been Vice President of the National Society of Mural Painters, the Art Students' League, and the Architectural League of New York.

PERSONALS

FREDERICK W. REVELS, Director of the Department of Architecture at Syracuse University, is on leave for a year and is spending the time in organizing and putting into operation a Department of Architecture, in the University of Porto Rico. Professor Revels will resume work at Syracuse University next year.

BIRCH BURDETTE LONG, architectural renderer, has removed his studio to 36 East 49th Street, New York City.

JOHN A. MCKIBBEN, architect, has removed his office from 707 Ford Building to the Industrial Trust Building, Wilmington, Del.

WANTS

Advertisements in this column five cents a word, none less than $1.00. Remittance must accompany order.

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THE SPECIFICATION DESK

A Department for Specification Writers

PLUMBING SPECIFICATIONS, PART IV.

By William C. Tucker

Valves

All valves, excepting those at hose connections of branches from fire standpipe, and controls at fixture supplies, shall be solid wedge gate valves of approved make with wheel handles. Valves two inches in diameter or less shall be all brass; those over two inches shall be iron-body brass-mounted.

Valves at hose connections of branches from fire standpipes shall be two and one half inch rough brass and gate valve painted iron or polished brass handles; as standard of neighboring work may demand, for a working pressure of 250 pounds.

Valves or controls upon supplies for flush valves of water closets and urinals shall be integral stops. Valves for supplies of lavatories shall be loose key angle stop valves.

Check valves shall be horizontal swinging checks; those two inches in diameter or less shall be all brass, those over two inches shall be iron-body brass-mounted.

All valves shall have working pressure for which they may be designed clearly cast upon body. Valves for use in a sixteen-story building should be those for 150 pounds pressure.

Fresh Air Inlet

From separate fitting on house side of main house-trap shall be taken a fresh air inlet of regulation size, and material, buried in masonry construction, and extended to surface of building, open end of which shall be protected with heavy polished, cast-brass screw cover punctured with numerous rectangular openings.

Service Main, Fish Trap, Meter

From street water main there shall be extended into the building, a service main of galvanized steel pipe, of ample size. At curb provide cock with spindle handle, in curb box with movable cover. At front wall provide control valve. Beyond valve provide fish trap, disc water meter with flanged connections, and check valve, testing valve, and gate valve in order named.

Suction Tank

A steel suction tank shall be provided within the building, for the suction for the pumps which should have a capacity of at least 3500 gallons, dependent upon size of job, and space available. It should rest upon steel grillage set upon masonry piers one foot above floor level; should be free from walls, and have working space over top for repairs and inspection.

Tank shall be built of $\frac{3}{8}$ inch steel according to size, with rounded edges and corners at bottom; shall have angle-iron frame extending around top; shall be divided into two equal sections by $\frac{3}{8}$ inch steel partition extending through its width so that one section always may be available while other may be undergoing repairs.

Top of tank shall be protected by a $\frac{3}{8}$ inch steel cover bolted to frame, which shall contain a manhole opening into each section, two feet square, protected by sliding cover.

Each section of tank shall be provided with at least two 2 inch valved supplies, set one foot below top, directly under manhole, with balanced float valves of similar size and, with 2 inch pipes, extending to within one foot of bottom. Each section shall be provided with sight gauge glasses in two sections, and steel ladders to manholes.

All connections with tank shall be flanged inside and outside.

From side near bottom of each section of tank shall be taken valved branches which shall unite and extend to pump suction with valve; 4 inch overflows from a point 9 inches below top shall unite and discharge over special hopper; and 2 inch valved draw-offs from bottom which shall unite and connect into overflows.

The hopper shall be built of $\frac{1}{4}$ inch steel with angle iron edge, shall be 12 inches wide 18 inches long, and 3 feet deep, and connect with 4 inch waste with check into back of leader trap.

House Tank

A house tank shall be provided in pent house on roof which shall act as supply for general house service, and relief against constant pumping and pump breakdown. Pent house shall be heated to prevent freezing, shall be of such size that there may be ample space for inspection of tank and shall be provided with natural and artificial light.

The house tank shall be built of $\frac{3}{8}$ inch steel according to size, shall be divided into two sections, and shall conform in general with suction tank, including shape, construction, support, partition, connections, cover manholes, etc.

Under tank provide $\frac{1}{4}$ inch steel safe pan extending 6 inches beyond side and turned up 4 inches, with 3 inch waste.

From each section of tank from point 9 inches below top shall be taken 4 inch over-flows which shall unite and discharge over roof and into which shall be connected 3 inch waste from safe, and 2 inch valved draw-offs with checks.

Into each division of tank shall be extended at least two 2 inch valved branches from pump riser, with balanced float valve and foot valve as specified for suction tank.

From side of each section at such height above bottom that there may always remain 3500 gallons for fire emergency, shall be taken valved branches which shall unite into supply header from which shall be taken valved main down supply and separate valved supply for hot water heater.

From side of each section near bottom shall be taken 6 inch valved branches which shall unite into fire header from which shall be taken 6 inch valved branch to fire stand pipes.

Buildings sixteen to thirty stories high should have two house tanks, one upon roof, and intermediate at sixteenth story. This method greatly reduces pressure upon pipe and fixtures. Buildings sixteen stories and under require one house tank.

Hot Water System

Hot water shall be supplied to every fixture and apparatus needing such service.

In basement shall be provided water heater, which may be either of two types. The most common, consisting of a galvanized steel cylinder, usually set horizontal, into which are inserted through the head seamless, drawn brass U tubes, which extend to within a short distance of the further end and clear of the bottom, through which steam passes, and around which water to be heated, circulates. The other type consists of a hollow circular casting around the interior of which the water to be heated, circulates, heat being derived from fire surrounding the lower portion of the interior. The cylinder type is always employed when steam may be available. It is the more economical, positive, and simplest.

The water heater shall have direct independent supply from house tank from which no branches shall be taken.

The heater shall be provided with cold water inlet, hot water outlet, circulation inlet all valved, air valve safety valve, thermometer, and self contained thermostatic control.

A circulation system shall be provided. From just below the highest fixture branch of each hot riser shall be taken a circulation branch which shall drop to basement with valve at foot and connect into head of heater near bottom, same end as cold water inlet. This method insures efficiency, economy of operation, and hot water immediately at the most distant fixture.

Gas Lighting System

An emergency gas lighting system shall be provided which shall have an outlet in each toilet room, upon each stair landing, hall, at necessary points in machinery room and where otherwise deemed necessary. Piping of system shall be standard full weight black steel pipe, with regulation fittings and control valves at foot of all risers, main from street shall be large.

Sump Drainage

Sump drainage shall be provided for floor drains, hot water heaters, overflow from tanks, drips from pans under pumps, and that from machinery, apparatus, etc., which may lie below the level of the gravity drainage system. Drainage shall be led to masonry or steel sump, which shall be provided with electrically driven submerged centrifugal pump, controlled by automatic starting and stopping device, which operates when drainage in sump has reached a predetermined height. Discharge from sump pump shall enter drainage system back of leader trap with check valve.

Ejector Drainage

Ejector drainage shall be provided for the soil and waste from fixtures, which may lie below the gravity drainage to sewer. Drainage shall be led into closed circular cast iron receptors of suitable size, which automatically and alternately receive the drainage from the fixtures and discharge it in similar manner into the house drain on the sewer side of house trap through separate running trap with fresh air inlet, by compressed air admitted to receptors by valved floats operated vertically by rise and fall of contents.

From drain to ejectors shall be extended to and above roof a 4 inch vent into which shall be connected to vents from the traps of all fixtures connecting with the ejector system.

Vacuum Cleaning

Cleaning of floors and floor coverings, etc., of office buildings, hospitals, theatres, churches, assembly halls, etc., or when the unit may be large is usually accomplished by mechanical means, which may be separated into two systems; permanent and portable.

The permanent system is usually a unit of large size, built in basement upon masonry foundations and consists of a motor driven vacuum producer, dust separaters, and complete system of piping installed during building construction, with inlet valves, and reinforced suction rubber hose in 25 foot lengths, and regulation hand cleaning tools. Vacuum risers should be erected with inlet valves at floor level of each story and at such points that all objects may be reached by one length of suction hose.

The portable cleaning system usually is small, consisting of a vacuum producer, motor driven, with dust bag, mounted upon a platform with wheels, which may be moved from place to place as service demands. Motor is actuated from current through cable from base receptor, in base board at floor. This system is much less expensive than the others and is usually employed upon smaller projects.

Refrigeration

Cooled drinking water service for each tenant is now recognized as one of the requisites of the modern office building. This may be supplied from a portable individual cooler in each office, or from a central refrigerating plant forming a unit of the general mechanical equipment of the building with iced water faucet over lavatory in each office.

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Humphrey Gas Water Heaters—Complete handbook showing details of construction, installation diagrams, capacities, tables, etc. 32 pp. 6x9 in. Humphrey Company, Kalamazoo, Mich.

The Perfect Floor—Descriptive booklet indicating best methods of laying and caring for fine floors. Illustrated. 16 pp. 5x7½ in. *The Post Everlasting*—Illustrated booklet covering the question of creosoted yellow pine products. Includes diagrams showing fence-corner and gate construction. Methods of laying wood blocks in farm and other buildings. 32 pp. 8x11 in. Long Bell Lumber Co., Kansas City, Mo.

Univent Ventilation—Special edition for architects and engineers. Contains data on the evolution of ventilation, charts showing amount of fresh air required in various types of buildings. Eight plates showing details of layouts and installations, capacity tables, roughing dimensions, specifications and other useful data. 72 pp. Profusely illustrated. 8½x11 in. Moline Heat, Moline, Ill.

Hoffman Casements—Portfolio of detail drawings and specification data dealing with casement windows, screens, shutters, curtains, weatherstrips, etc. 34 pp. 8½x11 in. Including one large drawing 23x32 in., showing full-size details of millwork for casements. Andrew Hoffman Mfg. Co., 28 East Jackson Blvd., Chicago, Ill.

Elevator Door Efficiency—Handbook and catalog with drawings and tables and specifications for various types of doors for freight elevators, dumb waiters, etc. 48 pp. 8x11 in. Peelle Company, Stewart Ave. and Harrison Place, Brooklyn, N. Y.

Structural Slate—Series of bulletins dealing with various uses of structural slate. Laundry tubs, shower stalls, urinals, wainscots, floors, and as an architectural material. Prepared by the Structural Service Bureau. 8½x11 in. Published for distribution by the Structural Slate Co., Penn Argyl, Pa.

National Asbestos and Asphalt Slate Surface Shingles —An Investment for Factory Buildings—This booklet sets forth the advantages of National "AanA" roofing for industrial plants with special reference to fire prevention, durability and economy. It is illustrated and will be sent to anyone on request, accompanied by samples of the material. Booklet is published by the National Asbestos Mfg. Co., Dept. O., 163 Henderson Street, Jersey City, N. J.

Automatic Temperature Control Specifications—Card to be hung in the drafting room giving eight specifications with temperature regulator chart. 8½x11 in. Published by the Fulton Co., Knoxville, Tenn.

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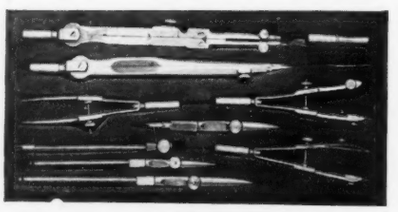

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